# *Frederick County Public Library*

## *System Documentation*

***Prepared By:***

*The Signature Group, Inc.*
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*Vienna, VA 22182*
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*(703) 734-9477 – Fax*

**AN EMPLOYEE OWNED COMPANY**

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AVERY READY INDEX® INDEXING SYSTEM

# *Frederick County Public Library*

## *Design*

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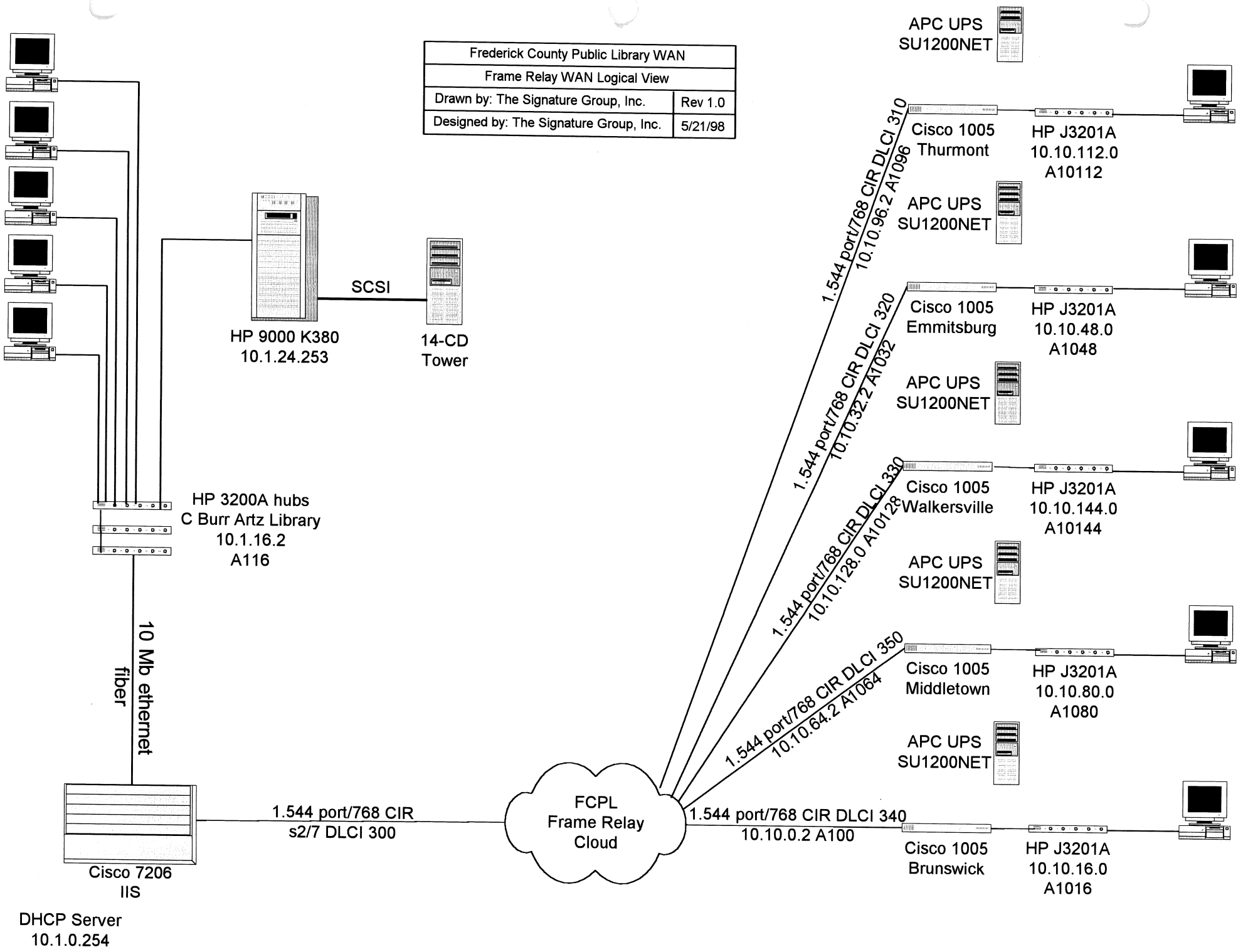
Frederick County Public Library WAN
Frame Relay WAN Logical View
Drawn by: The Signature Group, Inc.
Rev 1.0
Designed by: The Signature Group, Inc.
5/21/98
HP 9000 K380
10.1.24.253
SCSI
14-CD
Tower
HP 3200A hubs
C Burr Artz Library
10.1.16.2
A116
10 Mb ethernet
fiber
Cisco 7206
IIS
DHCP Server
10.1.0.254
1.544 port/768 CIR
s2/7 DLCI 300
FCPL
Frame Relay
Cloud
1.544 port/768 CIR DLCI 310
10.10.96.2 A1096
1.544 port/768 CIR DLCI 320
10.10.32.2 A1032
1.544 port/768 CIR DLCI 330
10.10.128.0 A10128
1.544 port/768 CIR DLCI 350
10.10.64.2 A1064
1.544 port/768 CIR DLCI 340
10.10.0.2 A100
APC UPS
SU1200NET
Cisco 1005
Thurmont
HP J3201A
10.10.112.0
A10112
Cisco 1005
Emmitsburg
HP J3201A
10.10.48.0
A1048
Cisco 1005
Walkersville
HP J3201A
10.10.144.0
A10144
Cisco 1005
Middletown
HP J3201A
10.10.80.0
A1080
Cisco 1005
Brunswick
HP J3201A
10.10.16.0
A1016

# Frederick County Public Library
# Wide Area Network Implementation Plan

**Designed By:**
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**Vienna, VA 22182**

**5/21/98**

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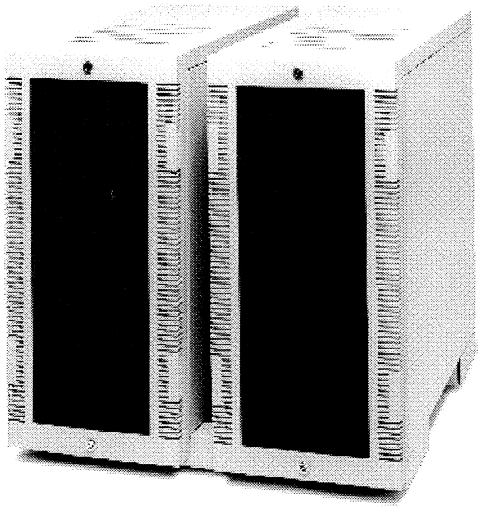
# CD Tower Configuration



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|---|---|
| /dev/dsk/c4t2d0 | /dev/dsk/c4t1d0 |
| /dev/dsk/c4t2d1 | /dev/dsk/c4t1d1 |
| /dev/dsk/c4t2d2 | /dev/dsk/c4t1d2 |
| /dev/dsk/c4t2d3 | /dev/dsk/c4t1d3 |
| /dev/dsk/c4t2d4 | /dev/dsk/c4t1d4 |
| /dev/dsk/c4t2d5 | /dev/dsk/c4t1d5 |
| /dev/dsk/c4t2d6 | /dev/dsk/c4t1d6 |

# *Frederick County Public Library*

## *Updated Implementation Plan*

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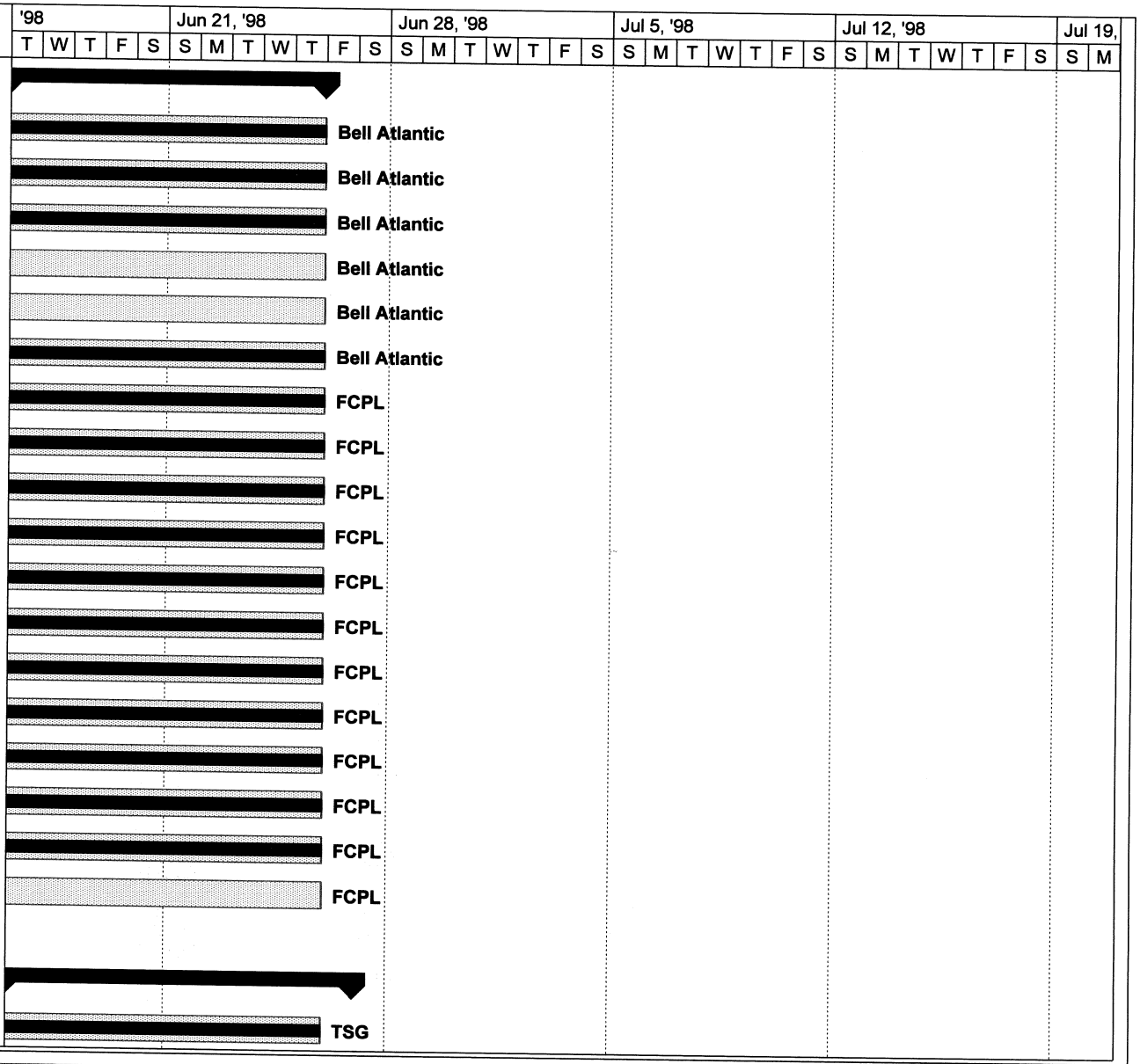
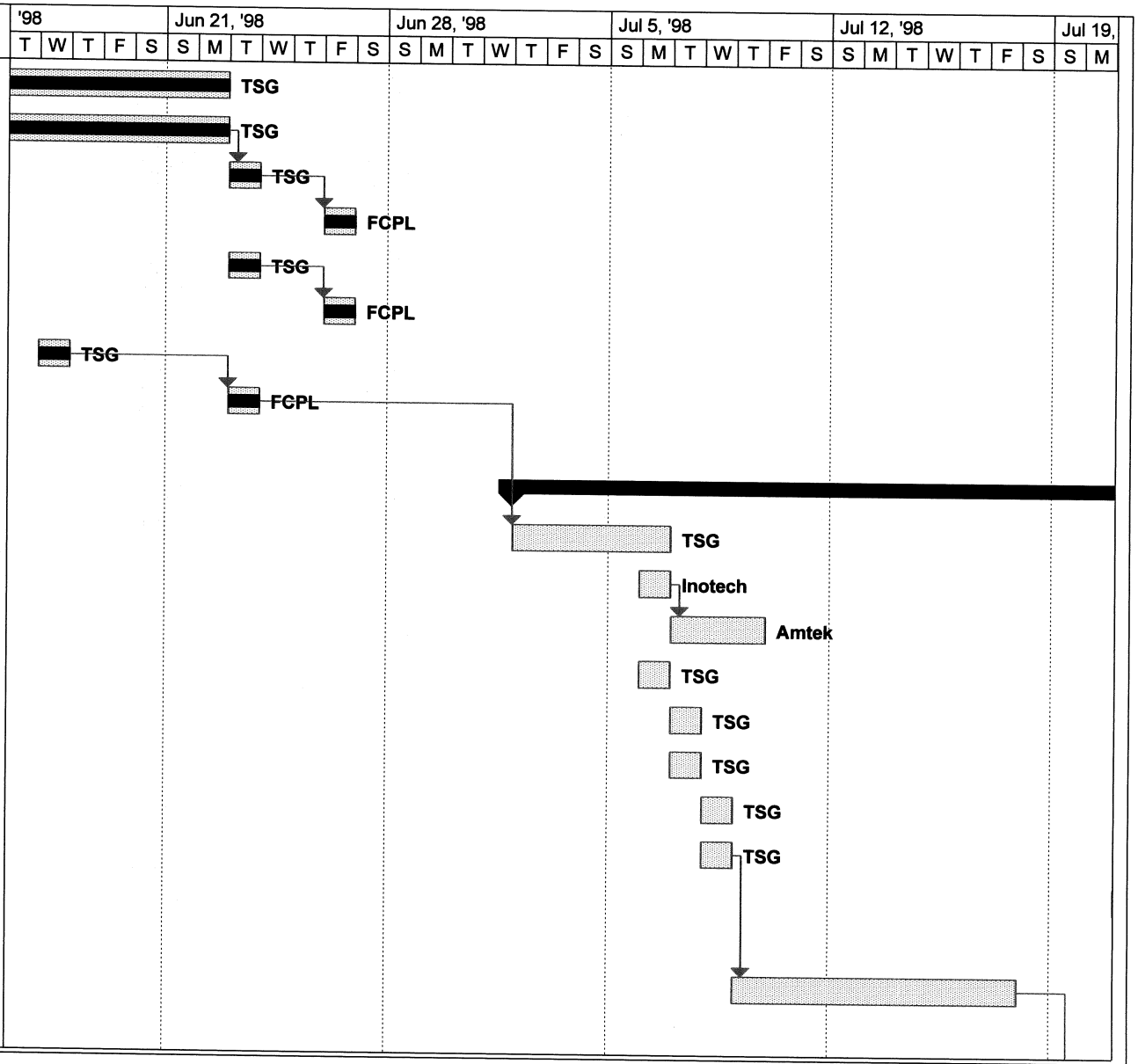
| ID | Finish | Predecessors | Resource Names |
|---|---|---|---|
| 1 | **Thu 6/25/98** | | **Bell Atlantic,FCPL** |
| 2 | Thu 6/25/98 | | Bell Atlantic |
| 3 | Thu 6/25/98 | | Bell Atlantic |
| 4 | Thu 6/25/98 | | Bell Atlantic |
| 5 | Thu 6/25/98 | | Bell Atlantic |
| 6 | Thu 6/25/98 | | Bell Atlantic |
| 7 | Thu 6/25/98 | | Bell Atlantic |
| 8 | Thu 6/25/98 | | FCPL |
| 9 | Thu 6/25/98 | | FCPL |
| 10 | Thu 6/25/98 | | FCPL |
| 11 | Thu 6/25/98 | | FCPL |
| 12 | Thu 6/25/98 | | FCPL |
| 13 | Thu 6/25/98 | | FCPL |
| 14 | Thu 6/25/98 | | FCPL |
| 15 | Thu 6/25/98 | | FCPL |
| 16 | Thu 6/25/98 | | FCPL |
| 17 | Thu 6/25/98 | | FCPL |
| 18 | Thu 6/25/98 | | FCPL |
| 19 | Thu 6/25/98 | | FCPL |
| 20 | | | |
| 21 | **Fri 6/26/98** | | |
| 22 | Thu 6/25/98 | | TSG |




Project: Revised FCPL 2
Date: Fri 9/4/98

Task
Split
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Split
Rolled Up Milestone
Rolled Up Progress
External Tasks
Project Summary

| ID | Finish | Predecessors | Resource Names |
|---|---|---|---|
| 23 | Mon 6/22/98 | | TSG |
| 24 | Mon 6/22/98 | | TSG |
| 25 | Tue 6/23/98 | 24 | TSG |
| 26 | Fri 6/26/98 | 25 | FCPL |
| 27 | Tue 6/23/98 | | TSG |
| 28 | Fri 6/26/98 | 27 | FCPL |
| 29 | Wed 6/17/98 | | TSG |
| 30 | Tue 6/23/98 | 29 | FCPL |
| 31 | | | |
| 32 | **Tue 7/21/98** | | |
| 33 | Mon 7/6/98 | 30 | TSG |
| 34 | Mon 7/6/98 | | Inotech |
| 35 | Thu 7/9/98 | 34 | Amtek |
| 36 | Mon 7/6/98 | | TSG |
| 37 | Tue 7/7/98 | | TSG |
| 38 | Tue 7/7/98 | | TSG |
| 39 | Wed 7/8/98 | | TSG |
| 40 | Wed 7/8/98 | | TSG |
| 41 | Tue 7/21/98 | | TSG |
| 42 | | | |
| 43 | Fri 7/17/98 | 40 | |
| 44 | | | |

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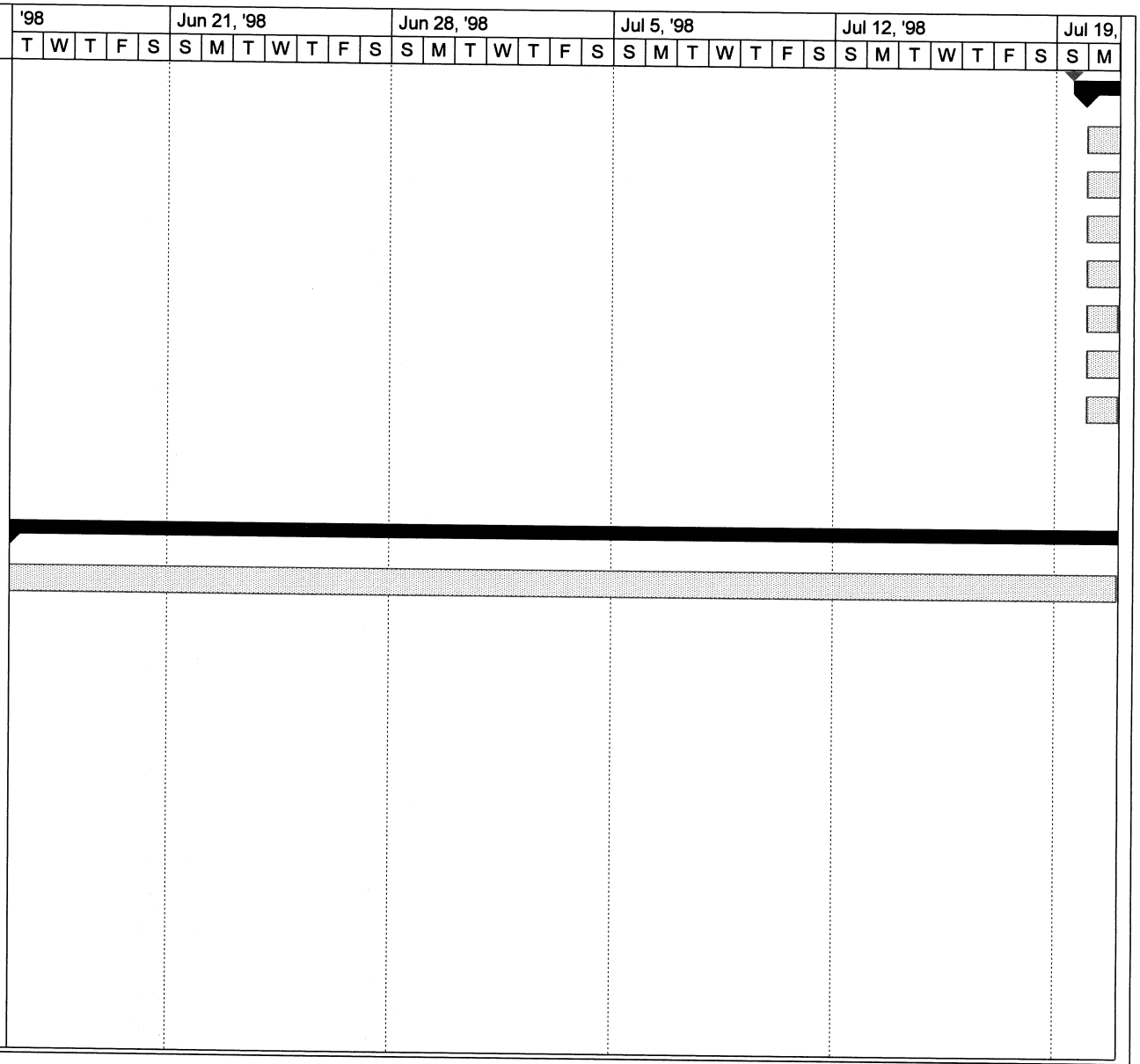
Date: Fri 9/4/98

Task
Split
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Split
Rolled Up Milestone
Rolled Up Progress
External Tasks
Project Summary

| ID | Finish | Predecessors | Resource Names |
|---|---|---|---|
| 45 | **Mon 7/27/98** | **43** | **FCPL/TSG** |
| 46 | Mon 7/27/98 | | FCPL/TSG,TSG,FCP |
| 47 | Wed 7/22/98 | | FCPL/TSG,TSG,FCP |
| 48 | Thu 7/23/98 | | FCPL/TSG,TSG,FCP |
| 49 | Tue 7/21/98 | | FCPL/TSG,TSG,FCP |
| 50 | Mon 7/20/98 | | FCPL/TSG,TSG,FCP |
| 51 | Tue 7/21/98 | | FCPL/TSG,TSG,FCP |
| 52 | Mon 7/20/98 | | FCPL/TSG,TSG,FCP |
| 53 | Tue 7/28/98 | 45 | TSG,FCPL |
| 54 | | | |
| 55 | **Fri 9/11/98** | | |
| 56 | Mon 7/20/98 | | TSG |
| 57 | Thu 7/23/98 | | TSG |
| 58 | Mon 8/31/98 | | TSG |
| 59 | Tue 9/1/98 | | TSG |
| 60 | Thu 9/10/98 | | TSG |
| 61 | Fri 9/11/98 | 60 | TSG |
| 62 | | | |
| 63 | **Fri 9/11/98** | | |
| 64 | Fri 9/11/98 | | TSG,FCPL |
| 65 | Fri 9/11/98 | 66 | FCPL/TSG,TSG,FCP |
| 66 | Fri 9/11/98 | | FCPL,TSG |

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Date: Fri 9/4/98

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Progress
Milestone
Summary
Rolled Up Task
Rolled Up Split
Rolled Up Milestone
Rolled Up Progress
External Tasks
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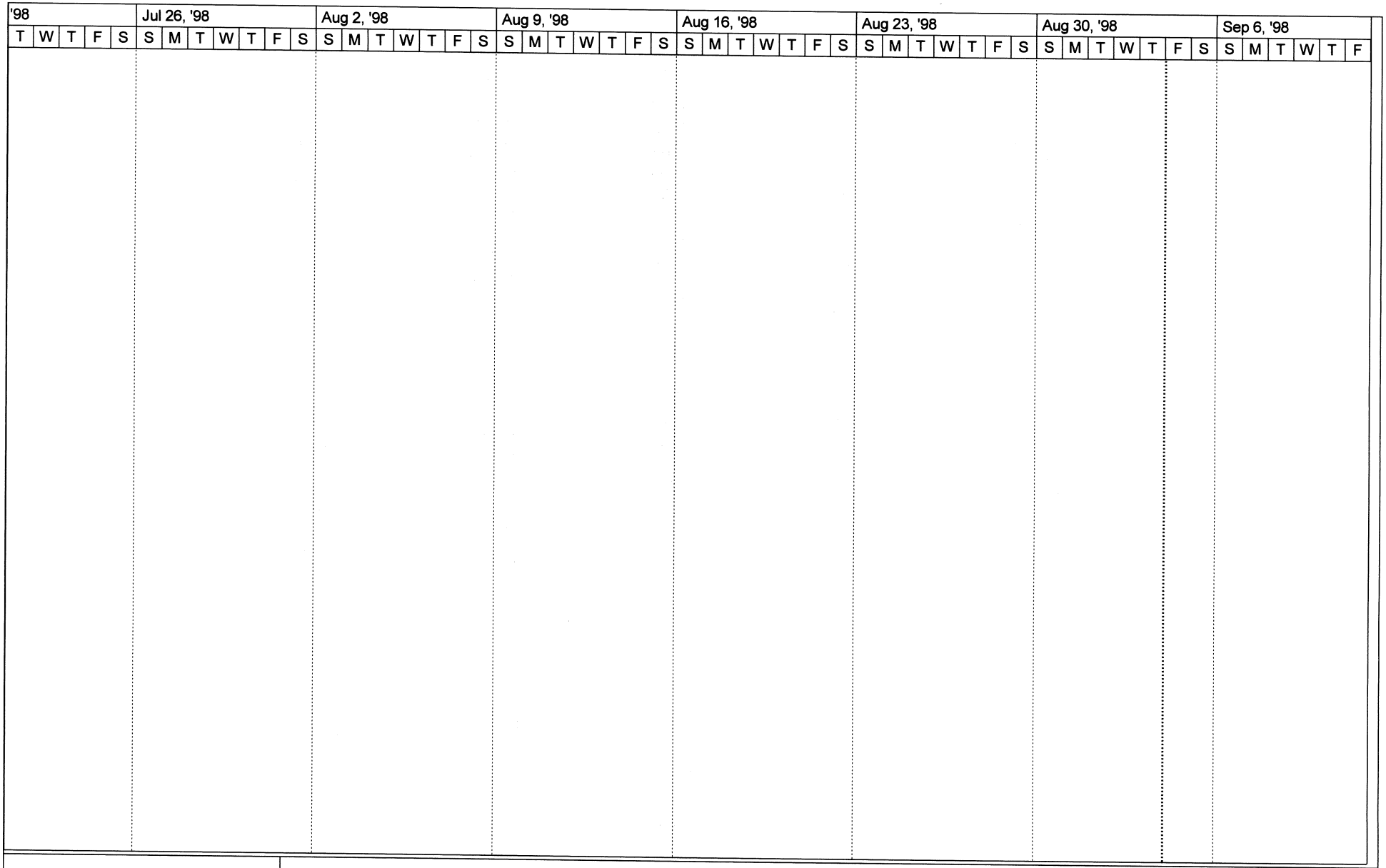
'98
Jul 26, '98
Aug 2, '98
Aug 9, '98
Aug 16, '98
Aug 23, '98
Aug 30, '98
Sep 6, '98
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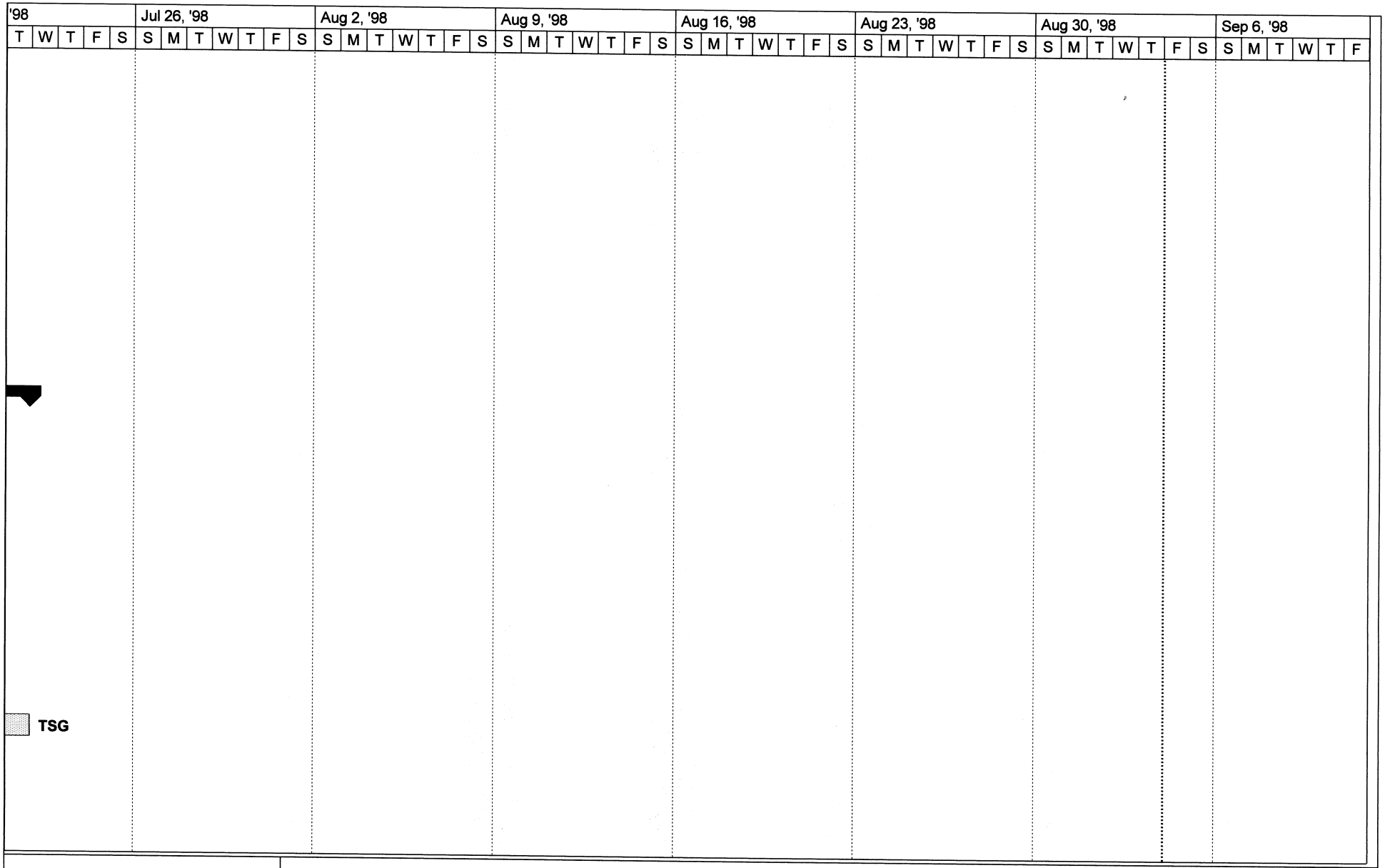
Rolled Up Progress
External Tasks
Project Summary


'98
Jul 26, '98
Aug 2, '98
Aug 9, '98
Aug 16, '98
Aug 23, '98
Aug 30, '98
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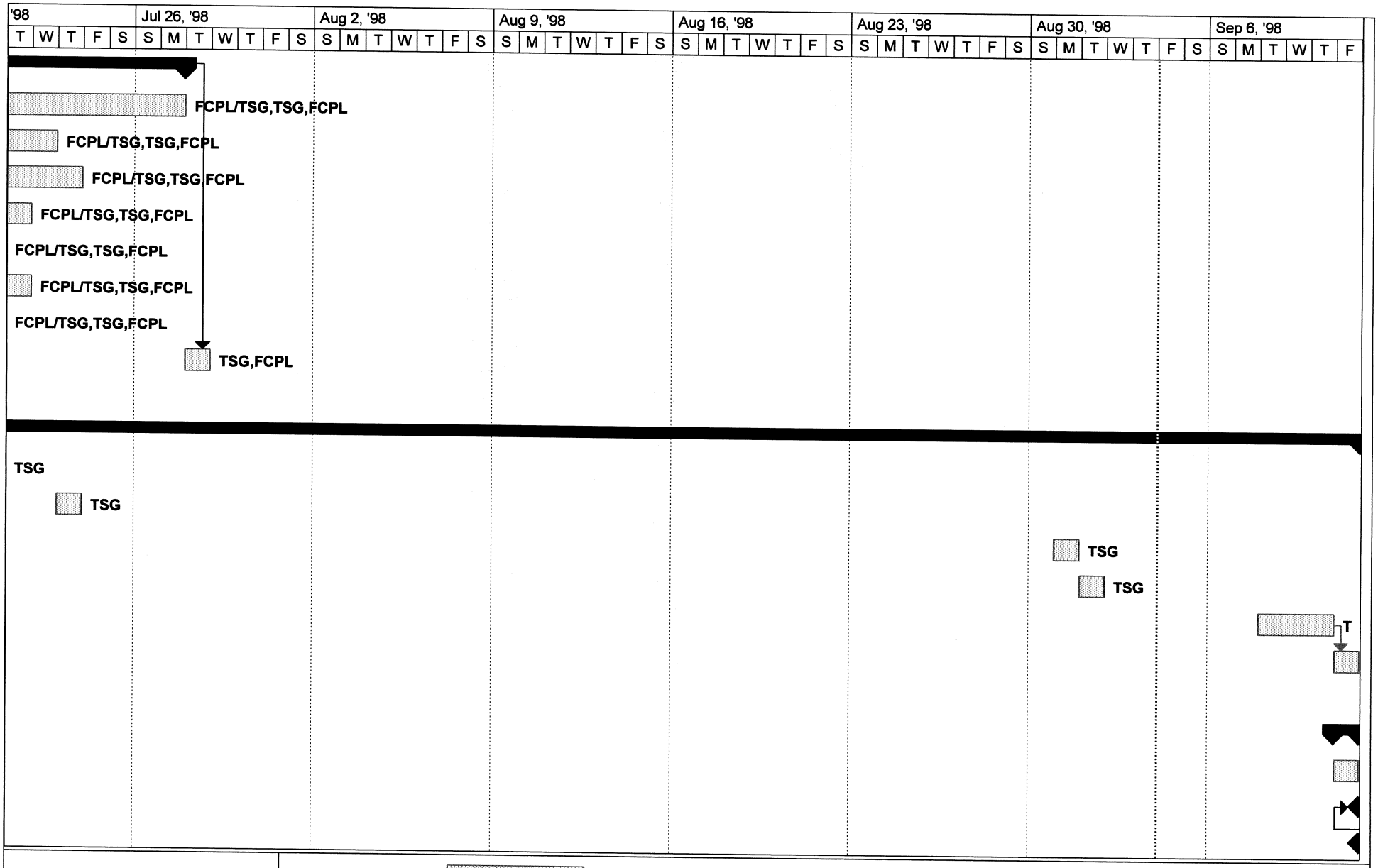
TSG

Project: Revised FCPL 2
Date: Fri 9/4/98

| | | | | | |
|---|---|---|---|---|---|
| Task | | Summary | | Rolled Up Progress | |
| Split | | Rolled Up Task | | External Tasks | |
| Progress | | Rolled Up Split | | Project Summary | |
| Milestone | | Rolled Up Milestone | | | |


'98
Jul 26, '98
Aug 2, '98
Aug 9, '98
Aug 16, '98
Aug 23, '98
Aug 30, '98
Sep 6, '98
T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W T F
FCPL/TSG,TSG,FCPL
FCPL/TSG,TSG,FCPL
FCPL/TSG,TSG,FCPL
FCPL/TSG,TSG,FCPL
FCPL/TSG,TSG,FCPL
FCPL/TSG,TSG,FCPL
FCPL/TSG,TSG,FCPL
TSG,FCPL
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Project: Revised FCPL 2
Date: Fri 9/4/98
Task
Split
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Split
Rolled Up Milestone
Rolled Up Progress
External Tasks
Project Summary

# *Frederick County Public Library*

## *Preparation Guide*

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# FCPL Preparation Guide

## Power

### C Burr Artz Building

| | |
|---|---|
| Workstations: | Each workstation requires three (PC, monitor, printer) grounded 15A outlets. |
| UPS: | Each UPS (there are two) requires one dedicated, grounded NEMA 5-20P outlet within six feet of UPS. |
| HP9000: | Will connect to UPS. |
| HP9000 monitor: | Will connect to UPS. |
| Hub: | Will connect to UPS. |
| CD Tower: | Will connect to UPS. |

### IIS

| | |
|---|---|
| CSU/DSU: | Requires one NEMA 5-15R UPS power outlet. |

### Branches

| | |
|---|---|
| Workstations: | Each workstation requires three (PC, monitor, printer) grounded 15A outlets. |
| UPS: | Each UPS (there is one per branch) requires one dedicated, grounded NEMA 5-20P outlet within six feet of UPS. |
| Router: | Will connect to UPS. |
| Hub: | Will connect to UPS. |
| CSU/DSU: | Will connect to UPS. |

## Category 5 wiring

FCPL must provide all Category 5 station cabling (terminated in 568A or 568B configuration) for connection of HQ workstations to the HP hub.

If branch workstations are not co-located with hub, FCPL must provide Category 5 station cabling (terminated in 568A or 568B configuration) for connection of workstations to the hub.

## Cooling

At the C Burr Artz facility, FCPL must provide sufficient cooling for the HP 9000 that will be installed there. The HP 9000 will require 1200 BTUs of cooling capacity.

FCPL Project meeting 052698

Attendees

Beth Pelle, FCPL
Mariellen Kirvos, FCPL
Teresa Vorce, FCPL
Alan Ambers, IIS
Rob Nicodemus, IIS
Craig Phillips, TSG

Router access and network monitoring were discussed. FCPL and IIS will both have the router passwords. FCPL will need the ability to monitor the network. Monitoring software was not included in the TSG proposal. Beth will review the original RFP to determine if it should have been. The functionality that is desired will allow technical services to determine if a router, hub, or circuit are operating if a problem occurs. Mariellen also expressed interest in the ability to remotely control branch PCs with software such as PC/Anywhere.

We discussed the security that FCPL wishes to have enabled on the workstations. The following ideas were captured. Craig will discuss with TSG staff to determine the feasibility of implementing them.

1. Only show icons for CDs.
2. Remapped CTL-ALT-DEL.
3. Backdoor for technical support.
4. Password security.
5. User sign-on.

We discussed the HP9000 internal tape drive because there was some confusion following FCPL's request to remove it from the order. (Discussion with Beth later in the week removed the confusion. It is clearly FCPL's desire to have a tape drive for backups.)

FCPL expressed interest in the cost of future HP/UX software upgrades. (I was able to verify later in the week that this was not included in the TSG proposal. I have asked the HP vendor to provide the cost.)

TSG prepared and distributed a preparation guide listing power, AC, and cabling tasks that FCPL will need to complete prior to implementation of the network. Beth reported that the CAT 5 cabling request is ready to go. She also reported that she had discussed cooling requirements with maintenance and there would be no problem.

Alan provided integration data on the IIS network that included the following:

IIS runs Netware 3.12 on their Novell servers.

NAT is supported on their proxy server (fredin.co.frederick.md.us) for Internet access.

DHCP is supported and will be used in the new network. The IIS DHCP server is at 10.1.0.254 and provides an IP address, subnet mask, default gateway, DNS server (primary and secondary), and domain name.

The IP subnet for the C Burr Artzz building is 10.1.16.0. The router is 10.1.16.1 and the hubs appear as one snmp entity at 10.1.16.2. The router interface is fiber, so there are no repeaters between the router and hubs.

For the browser configuration, all that is needed is the name of the proxy server. The HTTP port is standard (80).

The DHCP server is Cisco CDDM.

DNS is also supported using bind (version 4.8.3 or 4.9.3). DNS will be migrated to CDDM in the future.

Servers will be addressed statically. The HP 9000 will be 10.1.24.252. Alan also assigned the CD Tower IP address 10.1.24.253. (Later in the week Beth indicated that the CD Tower should be accessible within the HP/UX environment. Therefore, it will be connected to a SCSI port on the HP server and not accessible as a standalone IP device.)

Alan asked that DLCIs be assigned in the range of 300-399 if possible. (I have requested this through Net2000. They have not responded yet with verification.)

We discussed the availability (or unavailability of TSG proposed PCs). Craig agreed to find out the difference between what we proposed and what was offered as a replacement. (I found out that the new PC was still an IBM PC300GL. The new configuration includes a 266 MHz processor, instead of 233 Mhz. It also includes a 4.2 Gb HD, instead of a 2.5 Gb HD. The new PC is $127 more than the proposed PC. Beth approved this change later in the week.)

Teresa indicated that multiple users must access the CDs simultaneously. (I discussed this with TSG staff and determined that the number of users who can access a CD is determined by the CD and license purchased for that CD. There is nothing in the proposed solution that will limit the number of users who can simultaneously access a CD.)

There was some discussion around the software that needs to be installed at the PC to access the CDs. (I discussed with TSG staff and determined that TSG will install the necessary software on each PC to access each CD available at network install time. As new CDs are purchased or existing CDs are upgraded, additional PC software upgrades may need to be performed by FCPL staff. This will be dependent on the CD purchased and it's client software requirements.)

There is currently about 50 ethernet ports available at the C. Burr Artz facility. Many of these will be used when PCs with terminal server connections are migrated to ethernet. It was decided to leave the HP hub on the TSG proposal on the order to ensure adequate ethernet port capacity.

Following the meeting, Alan and Rob provided a tour of the IIS facility. Then Mariellen and I visited the Emmitsburg, Thurmont, and Walkersville branches to survey the facilities and determine circuit demarcation points within these branches.

# *Frederick County Public Library*

## *Thurmont Change Control*

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**Craig Phillips**

**From:** Craig Phillips
**Sent:** Monday, June 15, 1998 6:11 PM
**To:** Alan Ambers (E-mail)
**Cc:** Rob Nicodemus (E-mail); Mary Ellen Krivos (E-mail); Beth M. L. S. Pelle (E-mail); Michael C. Perdue; Scott Lucier; William DeMartini
**Subject:** FCPL Thurmont change control

# Thurmont Library Branch

11 Water Street
Thurmont MD 21788

(301)-271-7721

Overview: Install circuit, DSU, Cisco 1005 router, and HP J3201 hub in Branch.

Date requested: June 18, 1998
Primary site: Thurmont Library Branch
Date and Time scheduled for Change: June 29, 1 PM.

IIS Staff required for change: Alan Ambers
External Staff required for change: The Signature Group

Description of Change:

Install preconfigured ADC/Kentrox CSU/DSU, Cisco 1005 router, and HP J3201 hub.

Add equipment to OpenView and Cisco Works.
Will this change affect production users? No
Estimated time to complete change: 2 hours
Downtime: None-new install

Regression Plan if change is not successful: None-new install
Addressing details:

```
no service pad
service password-encryption
service udp-small-servers
service tcp-small-servers
service timestamps log datetime localtime
!
hostname Thurmont_lib
!
enable password cisco
!
ipx routing
!
interface Serial0
description Bell Atlantic Frame Relay PVC to IIS
encapsulation frame-relay
bandwidth 768
!
interface Serial0.1 point-to-point
```

```
description  FR PVC to IIS dlci 310 ==> 300
ip address 10.10.96.2 255.255.240.0
ipx network A1096
frame-relay interface-dlci 300
!
interface ethernet0
description Thurmont Ethernet LAN HPJ3201A hub
ip address 10.10.112.1 255.255.240.0
ip helper address  10.1.0.254
ipx network A10112 encapsulation SAP
!
router rip
 network 10.0.0.0
!
ip domain-name co.frederick.md.us
logging buffered
banner login ^C

      THIS SYSTEM IS RESTRICTED TO  AUTHORIZED INDIVIDUALS.
      UNAUTHORIZED ACCESS IS A CRIMINAL VIOLATION SUBJECT
      TO PROSECUTION.
^C
banner exec ^C

            Thurmont Branch Library Router
            11 Water Street
            Thurmont MD  21788

            CISCO 1005 (SN= 08290352)
            05/21/98

^C
!
line con 0
 login
 password cisco
line aux 0
 login
 password cisco
 transport input all
line vty 0 4
 login
 password cisco
```

# *Frederick County Public Library*

## *Emmitsburg Change Control*

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*Vienna, VA 22182*
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**Cc:** Rob Nicodemus (E-mail); Mary Ellen Krivos (E-mail); Beth M. L. S. Pelle (E-mail); Michael C. Perdue; Scott Lucier; William DeMartini
**Subject:** FCPL Emmitsburg change control

# Emmitsburg Library Branch

Community Center
School Lane
Emmitsburg MD 21727

(301)-447-2682

Overview: Install circuit, DSU, Cisco 1005 router, and HP J3201 hub in Branch.

Date requested: June 18, 1998
Primary site: Emmitsburg Community Center Library Branch
Date and Time scheduled for Change: June 30, 10 AM.

IIS Staff required for change: Alan Ambers
External Staff required for change: The Signature Group

Description of Change:

Install preconfigured ADC/Kentrox CSU/DSU, Cisco 1005 router, and HP J3201 hub.

Add equipment to OpenView and Cisco Works.
Will this change affect production users? No
Estimated time to complete change: 2 hours
Downtime: None-new install

Regression Plan if change is not successful: None-new install
Addressing details:

```
no service pad
service password-encryption
service udp-small-servers
service tcp-small-servers
service timestamps log datetime localtime
!
hostname Emmitsburg_lib
!
enable password cisco
!
ipx routing
!
interface Serial0
description Bell Atlantic Frame Relay PVC to IIS
encapsulation frame-relay
bandwidth 768
!
```

```
interface Serial0.1 point-to-point
description  FR PVC to IIS dlci 320 ==> 300
ip address 10.10.32.2 255.255.240.0
ipx network A1032
frame-relay interface-dlci 300
!
interface ethernet0
description Emmitsburg Ethernet LAN HPJ3201A hub
ip address 10.10.48.1 255.255.240.0
ip helper address  10.1.0.254
ipx network A1048 encapsulation SAP
!
router rip
 network 10.0.0.0
!
ip domain-name co.frederick.md.us
logging buffered
banner login ^C

      THIS SYSTEM IS RESTRICTED TO  AUTHORIZED INDIVIDUALS.
      UNAUTHORIZED ACCESS IS A CRIMINAL VIOLATION SUBJECT
      TO PROSECUTION.
^C
banner exec ^C

            Emmitsburg Branch Library Router
            Community Center
            School Lane
            Emmitsburg MD  21727

            CISCO 1005 (SN= 08290288)
            05/21/98

^C
!
line con 0
 login
 password cisco
line aux 0
 login
 password cisco
 transport input all
line vty 0 4
 login
 password cisco
```

# *Frederick County Public Library*

## *Walkersville Change Control*

***Prepared By:***

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**Subject:** FCPL Walkersville change control

# Walkersville Library Branch

57 West Frederick Street
Walkersville, MD 21793

(301)-845-8880

Overview: Install circuit, DSU, Cisco 1005 router, and HP J3201 hub in Branch.

Date requested: June 18, 1998
Primary site: Walkersville Library Branch
Date and Time scheduled for Change: June 30, 1 PM.

IIS Staff required for change: Alan Ambers
External Staff required for change: The Signature Group

Description of Change:

Install preconfigured ADC/Kentrox CSU/DSU, Cisco 1005 router, and HP J3201 hub.

Add equipment to OpenView and Cisco Works.
Will this change affect production users? No
Estimated time to complete change: 2 hours
Downtime: None-new install

Regression Plan if change is not successful: None-new install
Addressing details:

```
no service pad
service password-encryption
service udp-small-servers
service tcp-small-servers
service timestamps log datetime localtime
!
hostname Walkersville_lib
!
enable password cisco
!
ipx routing
!
interface Serial0
description Bell Atlantic Frame Relay PVC to IIS
encapsulation frame-relay
bandwidth 768
!
interface Serial0.1 point-to-point
```

```
description  FR PVC to IIS dlci 330 ==> 300
ip address 10.10.128.2 255.255.240.0
ipx network A10128
frame-relay interface-dlci 300
!
interface ethernet0
description Walkersville Ethernet LAN HPJ3201A hub
ip address 10.10.144.1 255.255.240.0
ip helper address 10.1.0.254
ipx network A10144 encapsulation SAP
!
router rip
 network 10.0.0.0
!
ip domain-name co.frederick.md.us
logging buffered
banner login ^C

      THIS SYSTEM IS RESTRICTED TO  AUTHORIZED INDIVIDUALS.
      UNAUTHORIZED ACCESS IS A CRIMINAL VIOLATION SUBJECT
      TO PROSECUTION.
^C
banner exec ^C

            Walkersville Branch Library Router
            57 West Frederick Street
            Walkersville,  MD 21793
            CISCO 1005 (SN= 08290250)
            05/21/98

^C
!
line con 0
 login
 password cisco
line aux 0
 login
 password cisco
 transport input all
line vty 0 4
 login
 password cisco
```

# *Frederick County Public Library*

## *Middletown Change Control*

***Prepared By:***

*The Signature Group, Inc.*
*8229 Boone Blvd.*
*Suite 820*
*Vienna, VA 22182*
*(703) 734-8720 – Voice*
*(703) 734-9477 – Fax*

**AN EMPLOYEE OWNED COMPANY**

**Craig Phillips**

**From:** Craig Phillips
**Sent:** Monday, June 15, 1998 6:11 PM
**To:** Alan Ambers (E-mail)
**Cc:** Rob Nicodemus (E-mail); Mary Ellen Krivos (E-mail); Beth M. L. S. Pelle (E-mail); Michael C. Perdue; Scott Lucier; William DeMartini
**Subject:** FCPL Middletown change control

# Middletown Library Branch

101 Prospect Street
Middletown, MD 21769

(301)-371-7560

Overview: Install circuit, DSU, Cisco 1005 router, and HP J3201 hub in Branch.

Date requested: June 18, 1998
Primary site: Middletown Library Branch
Date and Time scheduled for Change: July 1, 10 AM.

IIS Staff required for change: Alan Ambers
External Staff required for change: The Signature Group

Description of Change:

Install preconfigured ADC/Kentrox CSU/DSU, Cisco 1005 router, and HP J3201 hub.

Add equipment to OpenView and Cisco Works.
Will this change affect production users? No
Estimated time to complete change: 2 hours
Downtime: None-new install

Regression Plan if change is not successful: None-new install
Addressing details:

```
no service pad
service password-encryption
service udp-small-servers
service tcp-small-servers
service timestamps log datetime localtime
!
hostname Middletown_lib
!
enable password cisco
!
ipx routing
!
interface Serial0
description Bell Atlantic Frame Relay PVC to IIS
encapsulation frame-relay
bandwidth 768
!
interface Serial0.1 point-to-point
```

```
description  FR PVC to IIS dlci 350 ==> 300
ip address 10.10.64.2 255.255.240.0
ipx network A1064
frame-relay interface-dlci 300
!
interface ethernet0
description Middletown Ethernet LAN HPJ3201A hub
ip address 10.10.80.1 255.255.240.0
ip helper address  10.1.0.254
ipx network A1080 encapsulation SAP
!
router rip
 network 10.0.0.0
!
ip domain-name co.frederick.md.us
logging buffered
banner login ^C

      THIS SYSTEM IS RESTRICTED TO  AUTHORIZED INDIVIDUALS.
      UNAUTHORIZED ACCESS IS A CRIMINAL VIOLATION SUBJECT
      TO PROSECUTION.
^C
banner exec ^C

            Middletown Branch Library Router
            101 Prospect Street
            Middletown, MD 21769

            CISCO 1005 (SN= 08290286)
            05/21/98

^C
!
line con 0
 login
 password cisco
line aux 0
 login
 password cisco
 transport input all
line vty 0 4
 login
 password cisco
```

# *Frederick County Public Library*

## *Brunswick Change Control*

***Prepared By:***

*The Signature Group, Inc.*
*8229 Boone Blvd.*
*Suite 820*
*Vienna, VA 22182*
*(703) 734-8720 – Voice*
*(703) 734-9477 – Fax*

**AN EMPLOYEE OWNED COMPANY**

**Craig Phillips**

**From:** Craig Phillips
**Sent:** Monday, June 15, 1998 6:11 PM
**To:** Alan Ambers (E-mail)
**Cc:** Rob Nicodemus (E-mail); Mary Ellen Krivos (E-mail); Beth M. L. S. Pelle (E-mail); Michael C. Perdue; Scott Lucier; William DeMartini
**Subject:** FCPL Brunswick change control

# Brunswick Library Branch

915 North Maple Avenue
Brunswick, MD 21716

(301)-834-9065

Overview: Install circuit, DSU, Cisco 1005 router, and HP J3201 hub in Branch.

Date requested: June 18, 1998
Primary site: Brunswick Library Branch
Date and Time scheduled for Change: July 1, 1 PM.

IIS Staff required for change: Alan Ambers
External Staff required for change: The Signature Group

Description of Change:

Install preconfigured ADC/Kentrox CSU/DSU, Cisco 1005 router, and HP J3201 hub.

Add equipment to OpenView and Cisco Works.
Will this change affect production users? No
Estimated time to complete change: 2 hours
Downtime: None-new install

Regression Plan if change is not successful: None-new install
Addressing details:

```
no service pad
service password-encryption
service udp-small-servers
service tcp-small-servers
service timestamps log datetime localtime
!
hostname Brunswick_lib
!
enable password cisco
!
ipx routing
!
interface Serial0
description Bell Atlantic Frame Relay PVC to IIS
encapsulation frame-relay
bandwidth 768
!
interface Serial0.1 point-to-point
```

```
description  FR PVC to IIS dlci 340 ==> 300
ip address 10.10.0.2 255.255.240.0
ipx network A100
frame-relay interface-dlci 300
!
interface ethernet0
description Brunswick Ethernet LAN HPJ3201A hub
ip address 10.10.16.1 255.255.240.0
ip helper address  10.1.0.254
ipx network A1016 encapsulation SAP
!
router rip
 network 10.0.0.0
!
ip domain-name co.frederick.md.us
logging buffered
banner login ^C

      THIS SYSTEM IS RESTRICTED TO  AUTHORIZED INDIVIDUALS.
      UNAUTHORIZED ACCESS IS A CRIMINAL VIOLATION SUBJECT
      TO PROSECUTION.
^C
banner exec ^C

            Brunswick Branch Library Router
            915 North Maple Avenue
            Brunswick, MD 21716
            CISCO 1005 (SN= 08290296)
            05/21/98

^C
!
line con 0
 login
 password cisco
line aux 0
 login
 password cisco
 transport input all
line vty 0 4
 login
 password cisco
```

# *Frederick County Public Library*

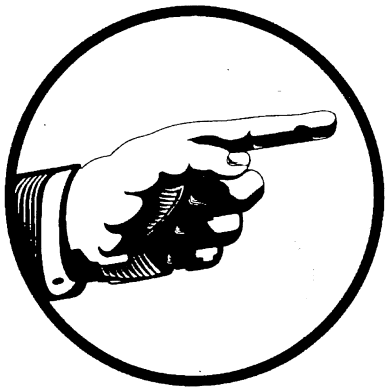
## *SMS Documentation*

***Prepared By:***

*The Signature Group, Inc.*
*8229 Boone Blvd.*
*Suite 820*
*Vienna, VA 22182*
*(703) 734-8720 – Voice*
*(703) 734-9477 – Fax*

**AN EMPLOYEE OWNED COMPANY**

SMS®



# S700 Tower Manual

# IMPORTANT - Owner's Record

The model and serial numbers are located on labels on the back exterior of the unit. Record these numbers in the spaces provided below. Refer to them whenever you call your sales representative or technical support regarding this product.

**Model No.** _____

**Serial No.** _____

**Note:** This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced Radio/TV technician for help.

**Caution:** Use of controls, adjustments or the performance of procedures other than those specified by the manuals may result in hazardous radiation exposure.

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*Precautions* . . . . . 5

*Location and Function of Parts and Controls* . . 6

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# Introduction

The material in this manual is for informational purposes only and is subject to change without notice. SMS Data Products Group, Inc., retains the right to make changes in the product design without reservations and without notification to its users.

You will find the latest information on the SMS home page at **http://www.sms.com**

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# Precautions

## Environment

- Avoid placing the S700 Tower in a location subject to:

  - High humidity
  - Excessive dust
  - Mechanical vibration
  - Direct sunlight

- Do not move the S700 Tower during operation. This may cause it to malfunction during reading.

- Avoid exposing the S700 Tower to sudden changes in temperature because condensation may form on the lens inside the drive. Should the surrounding temperature suddenly rise while the drive in on, wait at least one hour before turning off the power. Operating a S700 Tower immediately after a sudden increase in temperature may result in a malfunction during reading.

## Transportation

- Keep the original packing materials for future transport of the S700 Tower.

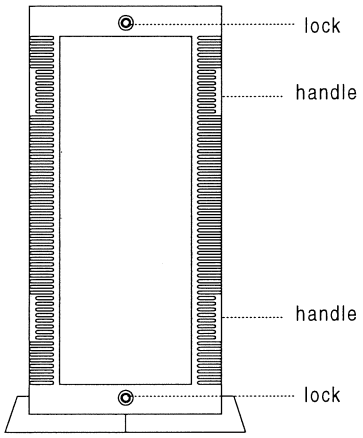
## Caution

- The laser beam in each S700 Tower drive unit is harmful to the eyes. Do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only. The use of optical instruments with this product will increase eye hazard.

# Location and Function of Parts and Controls

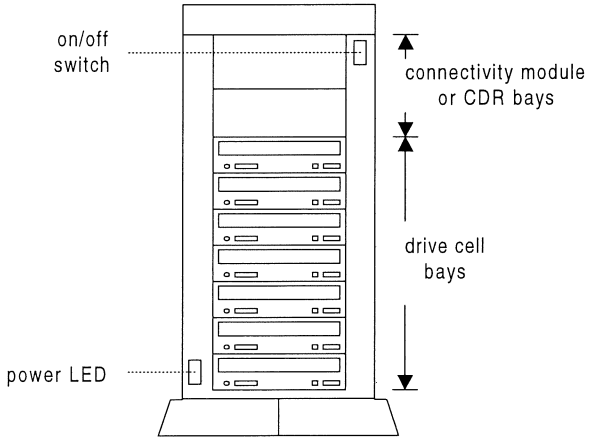
## Front

### Door

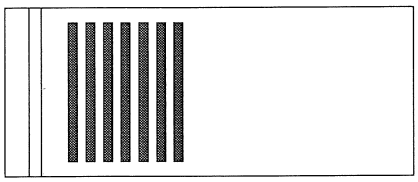



This door is capable of being adjusted to open from either side. To adjust the door, unsnap the door and bezel from the frame, rotate the door 180 degrees, and reattach (snap) it to the frame.

### Bezel

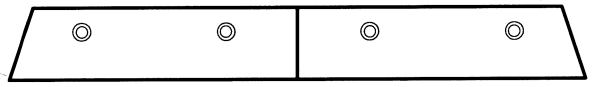


## Top



The top of the chassis provides slots to place as many as seven CD-ROM jewel boxes. The top also covers the channel for Ethernet and Token Ring connections. The top snaps into place and can be removed by pulling up on the top.

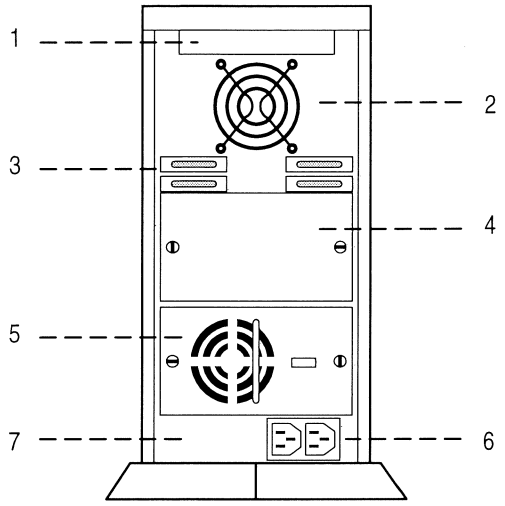
## Base



The base of the chassis is actually two identical pieces held in place by 4 screws at the front and 3 screws and bolts between the halves. Once the screws are removed the base can be unsnapped from the frame.

The base comes with four adjustable feet which can be replaced with optional rolling casters.

## Back



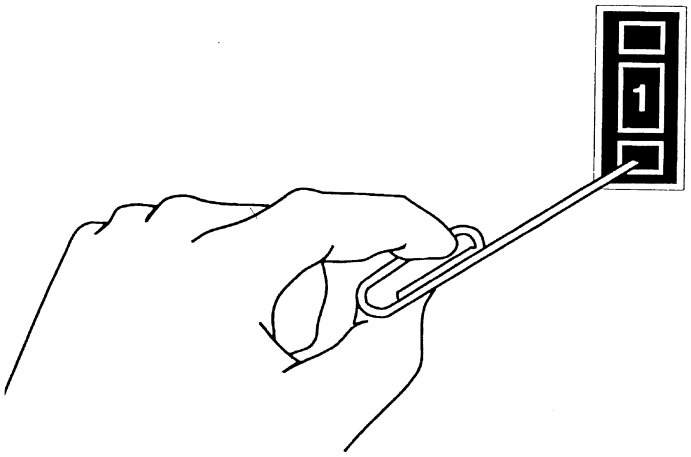

## Parts

1 Connectivity module port
2 Fans
3 SCSI I/O ports
4 Redundant power supply bay
5 Power supply and power supply fan
6 AC Out / AC In and fuse box
7 Identification label

## SCSI ID Settings

There are 8 SCSI addresses (0 - 7) for any device on a SCSI bus. The host adapter is always address 7. The PC's bootable hard drive, C:, may be SCSI address 0, and other SCSI devices attached to the host adapter must each have a unique SCSI address between 1 and 6. A chassis, which includes 7 SCSI drives, must be attached to a dedicated SCSI host adapter. Located on the back of each drive cell tray are SCSI push button address switches for assigning SCSI addresses.

Set the SCSI addresses by pushing the small button below the switch address indicator until the desired address appears in the window. The upper button reverses the selection.

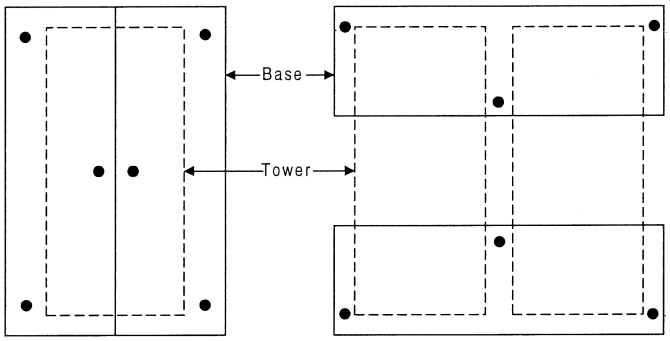



**Note**: SCSI IDs come preset on the drive cell trays in the chassis.

# Twin and Rack Configuration

## Twin

The S700 can be re-assembled as a twin tower. By removing the base then separating the two halves and rotating the two sections 90 degrees, two chassis can then be snapped onto the two sections of the base.




A third mounting hole underneath each separate base is provided for extra support for the twin tower using the unused bases adjustable feet or optional casters.

## Rack

Another feature of the S700 is that when the top and base are removed from the chassis, it can be rack mounted (see page 7).

When the door and the bezel are removed (unsnapped) the rack mounting brackets are exposed. Once the rack is mounted the door and bezel can be reattached.

# Tower Specifications

## Power Requirements

*Power input*

| | |
|---|---|
| Voltage (auto-ranging) | 90 - 132 / 180 - 250 VAC |
| Input Current | 7.3 / 4.0 Amps |
| AC input frequency | 47 - 63 Hz |

300 watts total maximum continuous

*Cooling*

42.5 cfm rear wall fan
35 cfm power supply fan

*Power Consumption*

P = V x I (Power [watts] = Voltage x Current)

## Dimensions and Weight

| *Model* | *Dimensions (w/h/d)* | *Mass* |
|---|---|---|
| S700 | 10.25" x 20" x 22" | 69 lbs* |

** fully configured with connectivity bays and drive cells*

# Technical Support

If you have not been able to find the answer to your questions in this manual, or any other manual supplied with this tower, refer to the technical section of the SMS homepage at **http://www.sms.com**. If you are unable to resolve your problem(s) please call technical support at (703) 709-9898, ext. 5911. When contacting Technical Support have the tower serial number and model available.

# Limited Warranty

SMS Data Product Group, Inc., (SMS) warrants the commercial products covered by this manual against defects in material or workmanship, as follows:

For a period on three (3) year from the date of retail purchase, SMS shall at its sole and absolute option either:

i) Repair the defective product at no charge, or

ii) Replace the defective product with the same model or an equivalent comparable model at no charge, or

iii) Refund the purchaser's money.

To obtain warranty service, contact SMS technical support to obtain an RMA number. Have the tower model and serial number available and a dated proof of purchase number (such as bill of sail) on hand for verification. Once you have an RMA number, ship the unit in its original packaging to:

**SMS Data Products Group, Inc.**
**Attn: RMA xxx**
**22930 Shaw Road**
**Sterling, VA 20166-9448**
*(703) 709-9898*

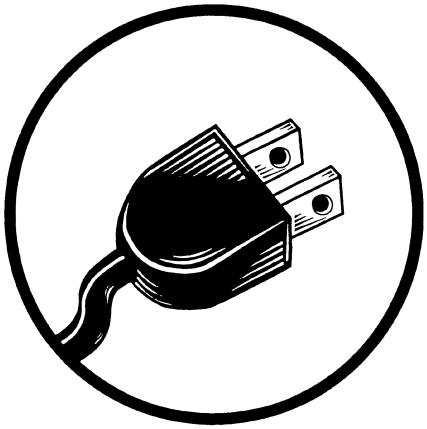
You are responsible for the risk of loss in shipping and for all shipping and insurance costs required to deliver the product to the above address.

This warranty does not cover cosmetic damage, failures or damage due to or resulting from acts of God, accidents, misuse, abuse, negligence, alteration, improper maintenance, improper installation, improper air conditioning, external power sources, improperly filtered power, excessive humidity, or equipment or software not covered by this warranty (i.e., the equipment of a third party). SMS does not warrant that the products are fully functional or compatible with the products or software of third parties unless SMS has tested and approved the third party's products or software. This warranty is void where any of the original identification marks have been removed or altered or where this product is sold as a component of a single product of a third party.

REPAIR, REPLACEMENT, OR REFUND ARE THE EXCLUSIVE REMEDIES PROVIDED UNDER THIS WARRANTY. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, SMS SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER UNDER CONTRACT, TORT, OR ANY OTHER THEORY OF LAW OR BY OPERATION OF LAW. EXCEPT AS OTHERWISE REQUIRED BY APPLICABLE LAW, THERE ARE NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO CASE WILL SMS' LIABILITY EXCEED THE COST OF THE PRODUCTS WARRANTED HEREUNDER.

Printed in the United States
04/97 ver 1.1
Part No. **S700 Manual**

SMS®



# *LSX Connectivity Module*

# LSX™ - Luminex™ SCSI Expander User's Manual, version 1.4

March 1996
Part Number: LSX-UMAN-1.4 - Printed in the USA

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6840 Indiana Ave.
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Riverside, CA. 92506
Phone : (909) 781-4100
Fax : (909) 781-4105

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# SUPPORT AND WARRANTY

Support is provided from Luminex directly to the integrator through-out the warranty period. The integrator is required to provide support and warranty services for their resellers and end-users.

## LSX WARRANTY

Luminex warrants LSX products to be free from defect in material and workmanship for a period of 1 year from date of shipment. During this period if a LSX product is found to be defective and Luminex support personnel are unable to provide a reasonable alternative solution to the defect, a Return Material Authorization (RMA) will be issued. The integrator is responsible for returning the LSX to Luminex, freight pre-paid. Luminex will repair or replace, at its sole discretion, the LSX and will return within the United States the LSX to the integrator freight pre-paid.

If any individual order includes LSX product that Luminex sells without warranty, purchaser hereby acknowledges that such LSX product is sold AS-IS, with no warranties of any kind, expressed or implied, and Luminex shall have no obligation or liability to Purchaser to warrant, repair or support such designated LSX product.

Luminex shall not be obligated to repair or to replace any LSX product which has been damaged in whole or in part due to catastrophe, fault or negligence of the user, improper or unauthorized use, use in such a manner for which the LSX was not designed, or by external causes such as but not limited to improper mounting, cabling, configuration or power connection. Luminex's sole obligation thereunder shall be to repair or replace LSX products that have been returned to Luminex with an approved RMA number and unless otherwise stated pay return freight cost within the United States for such replacement. On-site service is not a part of this warranty.

## RETURNED MATERIAL

Warranty claims must be received by Luminex within the applicable warranty period. A replaced LSX product, or part thereof, shall become the property of Luminex and shall be returned to Luminex FOB Luminex. All returned LSX product must be accompanied by a Return Material Authorization (RMA) number assigned by Luminex.

## LIMITATIONS

THE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

## LIMITATION OF LIABILITY

LUMINEX SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM OR RELATED TO THE USE OF LSX PRODUCTS INCLUDING WITHOUT LIMITATION, DAMAGES ARISING FROM LOSS OF DATA OR PROGRAMMING, LOSS OF REVENUE OR PROFITS, FAILURE TO REALIZE SAVING OR OTHER BENEFITS, EVEN IF LUMINEX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. LUMINEX'S LIABILITY FOR DAMAGES FOR ANY CAUSE WHATSOEVER (EXCLUSIVE OF PERSONAL INJURY OR PROPERTY DAMAGE CAUSED BY ITS WILLFUL WRONGDOING) SHALL BE LIMITED TO THE TOTAL PURCHASE PRICE FOR THE PARTICULAR PRODUCT.

# The LSX

## Overview

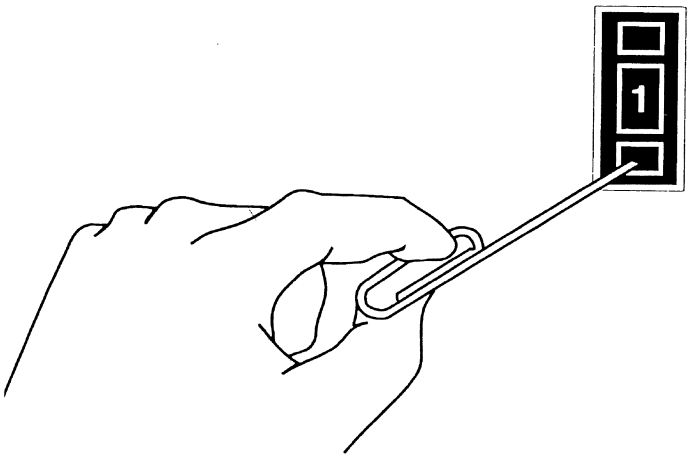
The LSX is a SCSI controller with two independent SCSI chips. Using these two chips and SCSI logical unit numbers (LUNs), the LSX allows a single host SCSI ID to support up to 7 SCSI devices. The LSX has one SCSI IN ID, and supports up to 7 devices on the LSX SCSI OUT bus. The host operating system communicates with LSX SCSI OUT devices by issuing SCSI commands to the LSX SCSI IN ID, LUNs 0 through 7. The LSX translates the LUN of each command to a LSX SCSI OUT device ID and passes the host command to the SCSI device on the LSX SCSI OUT bus with that ID.

The LSX allows a total of seven LSX towers, each with seven drives (for a total of 49), to be daisy chained together and supported by a single standard SCSI host adapter occupying a single SCSI bus slot.

# Configuration & Installation

## SCSI Requirements

Each drive has a SCSI push button address switch for assigning SCSI addresses. The LSX has its own push button SCSI address or SCSI ID and each drive then becomes a LUN. To assign each drive as a LUN, use the SCSI push button address switch.




Set the SCSI addresses by pushing the small button below the switch address indicator until the desired address appears in the window. The upper button reverses the selection.

**Note**: All LSX towers come with SCSI IDs preset.

## SCSI Host Adapters

The following table is a partial listing of the host adapters and driver levels that support Logical Unit Numbers (LUNs) for CD-ROM devices.

| | Adaptec | Buslogic | Other |
|---|---|---|---|
| Novell | ASPICD.DSK v. 7/25/95 | BT31X.DSK v. 6/23/95 | Requires LUN support in the CD-ROM driver |
| NT | AIC78XX.SYS v. 8/4/95 (2940)<br><br>AHA154X.SYS v. 5/26/95 | BUSLOGIC.SYS v. 11/23/94 | Requires LUN support in the CD-ROM driver |
| DOS/<br><br>Windows | ASPICD.SYS v. 9/27/94 | BTCDROM v.6/7/94 | Requires LUN support in the CD-ROM driver |
| OS/2 | AHA154X.ADD v. 10/5/94 | BTSCSI.ADD v. 3/21/95 | Requires LUN support in the CD-ROM driver |
| MAC | | | Charismac driver v 6/95 |
| UNIX - Intel | | | Solaris 2.4 |
| UNIX - RISC | | | AIX 3.2<br>AIX 4.1<br>SUN OS 4.1.x<br>Solaris 2.x<br>IRIX 5.3<br>HP/UX 9.x<br>HP/UX 10.x |

## Configuring the Operating System

You will need to configure the Host operating system to support SCSI Logical Unit Numbers (LUNs). The steps required to enable LUN support are different for each operating system and SCSI host adapter combination. Please refer to the operating system and SCSI host adapter manuals for specific details.

### DOS and Windows

#### Adaptec controllers

Add /L to ASPICD.SYS in CONFIG.SYS to configure the CD-ROM driver to support LUNs

Add /L to ASPI4DOS.SYS in CONFIG.SYS to configure the aspi manager to support LUNs (the aspi manager may also be named aspi7dos or aspi8dos)

#### Buslogic controllers

Add /L to BTCDROM.SYS in CONFIG.SYS to configure the CD-ROM driver to support LUNs

Add /l to the BTDOSM.SYS in CONFIG.SYS to configure the high level driver to support LUNs

Note: If you add /L to the MSCDEX line in the AUTOEXEC.BAT file, this option will place a specific drive letter to a CD-ROM drive, IT DOES NOT ENABLE LUNs.

Example: **/L:S** starts drives beginning with the letter S.

#### Other SCSI controllers

For other controller types; please refer to your SCSI host adapter user manual for instructions on how to enable the SCSI drivers to recognize and use LUNs.

### Netware

#### Adaptec controllers

The driver must be the 7/26/95 version or later.

Add lun_enable=ff to the end of the ASPICD.DSK line in AUTOEXEC.NCF startup file.

### Other SCSI controllers

For other controller types; please refer to your SCSI host adapter user manual for instructions on how to enable the SCSI drivers to recognize and use LUNs.

## MAC

You will need to use a MAC SCSI driver that supports the LSX. The AUTOCACHE driver from CharisMAC software currently supports the LSX.

## NT

### Adaptec controllers

Under Windows NT parameters; set the field labeled MaximumLogicalUnit: to 0 (zero). If the value is set to 1 (one), then the drive will only look at one LUN (i.e. LUN=0) for each SCSI ID. A value of 0 (zero) tells the drive to look at LUNs 0 through 7 for each SCSI ID.

### Other SCSI controllers

For other controller types; please refer to your SCSI host adapter user manual for instructions on how to enable the SCSI drivers to recognize and use LUNs.

## UNIX

### Sun OS 4.1.x

This is intended to be a brief overview of kernel configuration on a Sun running SunOS 4.1.3. For more information, please refer to your system documentation and manual pages.

1. Determine the SCSI ID of the LSX and LSX controlled devices:

   a) you can determine what other devices are connected to the SUN by using a 'probe-scsi' command from the boot prompt. This is the prompt which shows up after you halt the system.

   b) You can also determine the SCSI ID by looking at other SCSI ID's in use by your current configuration.

2. Login as root, or become the super user.

3. Determine your kernel architecture by typing: arch -k

4. cd /sys/XXX/conf where XXX was the value returned by step 3.

5. Determine the kernel configuration file to modify. Type:

   cat /etc/motd

   and finding the name located in the parenthesis.

6. Using an editor (such as vi), locate the stanzas which describe the SCSI devices. They usually looks something like the following (you may want to make a copy of the configuration file before you begin):

```
#
# The following section describes SCSI device unit assignments.
#
scsibus0 at esp                          # declare first scsi bus
disk sd0 at scsibus0 target 3 lun 0   # first hard SCSI disk
disk sd1 at scsibus0 target 1 lun 0   # second hard SCSI disk
disk sd2 at scsibus0 target 2 lun 0   # third hard SCSI disk
disk sd3 at scsibus0 target 0 lun 0   # fourth hard SCSI disk
disk sd16 at scsibus0 target 5 lun 0 # seventeenth(fifth) hard SCSI
disk
tape st0 at scsibus0 target 4 lun 0   # first SCSI tape
tape st1 at scsibus0 target 5 lun 0   # second SCSI tape
tape st2 at scsibus0 target 1 lun 0   # third SCSI tape
tape st3 at scsibus0 target 0 lun 0   # fourth SCSI tape
disk sr0 at scsibus0 target 6 lun 0   # CD-ROM device
disk sr1 at scsibus0 target 5 lun 0   # second CD-ROM device
disk sr3 at scsibus0 target 1 lun 0   # third CD-ROM device
disk sr4 at scsibus0 target 0 lun 0   # fourth CD-ROM device
```

This is the default setup for the 'GENERIC' configuration file. As you can see there are entries for a number of devices which you probably do not have attached to your system. Since you have copied the configuration file, you should probably remove entries for devices which you do not have attached. You can do this by deleting the line, or by inserting a '#' symbol in front of the line.

There are additional stanzas for the other SCSI Busses. Be sure to locate the stanza for the SCSI bus driving the LSX. Most likely, you only have one SCSI bus, so you will want to modify the stanza for scsibus0.

7. To add a LSX and the LSX attached SCSI devices, you will want to add a set of lines similar to the following:

```
disk sr1 at scsibus0 target X lun 1      # First drive
disk sr2 at scsibus0 target X lun 2      # Second drive
disk sr3 at scsibus0 target X lun 3      # Third drive
disk sr4 at scsibus0 target X lun 4      # Fourth drive
disk sr5 at scsibus0 target X lun 5      # Fifth drive
disk sr6 at scsibus0 target X lun 6      # Sixth drive
disk sr7 at scsibus0 target X lun 7      # Seventh drive
```

where the X corresponds to the SCSI ID of your LSX (i.e. 4).

For example, a Sun, with a hard disk at SCSI ID 3, an existing CD-ROM drive at SCSI ID 6, and a Tape Drive at SCSI ID 4. Should look like this before modification:

```
disk sd0 at scsibus0 target 3 lun 0  # first hard SCSI disk
tape st0 at scsibus0 target 4 lun 0  # first SCSI tape
disk sr0 at scsibus0 target 6 lun 0  # CD-ROM device
```

After adding the entries for the LSX and the LSX attached devices, it should look like:

```
disk sd0 at scsibus0 target 3 lun 0  # first hard SCSI disk
tape st0 at scsibus0 target 4 lun 0  # first SCSI tape
disk sr0 at scsibus0 target 6 lun 0  # CD-ROM device
disk sr1 at scsibus0 target 2 lun 1      # First drive
disk sr2 at scsibus0 target 2 lun 2      # Second drive
disk sr3 at scsibus0 target 2 lun 3      # Third drive
disk sr4 at scsibus0 target 2 lun 4      # Fourth drive
disk sr5 at scsibus0 target 2 lun 5      # Fifth drive
disk sr6 at scsibus0 target 2 lun 6      # Sixth drive
disk sr7 at scsibus0 target 2 lun 7      # Seventh drive
```

8. You must now rebuild the kernel.

a. Save your modified configuration file.

b. Type: config NAME where NAME is the name of the configuration file

c. cd ../NAME

d. Type: make

e. If the kernel compiles without errors, you are ready to install it. Otherwise, you must fix any problems.

f. To install the kernel:

1. Type: cp /vmunix /vmunix.old
2. Type: cp vmunix /vmunix
3. cd /
4. Reboot using: fastboot

9. Your kernel should recognize the CD-ROM drive when booting by printing out a banner as it configures the devices similar to the following:

sr1 at esp0 target 2 lun 1
sr2 at esp0 target 2 lun 2

etc.

If you don't see this message, but the kernel boots, it means that either the device is not connected properly, or you have not configured the kernel properly. If the kernel doesn't boot, it means you have not properly edited the configuration file. You will need to boot your old kernel by typing something similar to the following at the "ok" prom boot prompt:

boot disk vmunix.old

10. You should make sure that block and character device nodes exist in /dev for the entries you added to the kernel configuration file. If you added entries for sr1 through sr7, then you should have /dev/rsr1 through /dev/rsr7

and

/dev/sr1 through /dev/sr7 in the device directory. The major number for block CD-ROM devices is 18, and for character devices it is 58. The minor numbers go up in increments of 8 from 0. For instance, if I had an internal CD-ROM drive at sr0, and the LSX and its devices at sr1 through sr7, I should see something like the following if I do an 'ls -l /dev/sr?'.

```
br-xr-xr-x  1  root  18,  0  Dec 2  1994  /dev/sr0
br-xr-xr-x  1  root  18,  8  Dec 2  1994  /dev/sr1
br-xr-xr-x  1  root  18, 16  Dec 2  1994  /dev/sr2
br-xr-xr-x  1  root  18, 24  Dec 2  1994  /dev/sr3
br-xr-xr-x  1  root  18, 32  Dec 2  1994  /dev/sr4
br-xr-xr-x  1  root  18, 40  Dec 2  1994  /dev/sr5
br-xr-xr-x  1  root  18, 48  Dec 2  1994  /dev/sr6
br-xr-xr-x  1  root  18, 56  Dec 2  1994  /dev/sr7
```

If you do not see all the device nodes, you must create them. To create a character device node, use:

```
mknod /dev/rsrX c 58 N
```

where X is the rsr number (i.e. 1 thru 7), and N is X times 8.

To create a block device node, use:

```
mknod /dev/srX b 18 N
```

where X is the sr number (i.e. 1 thru 7), and N is X times 8.

### Solaris 2.x

1. You must configure the kernel to recognize LUNs.

   a) cd /kernel/drv
   b) copy sd.conf sd.conf.old
   c) edit sd.conf (using your favorite editor: i.e. vi or emacs)

      i) look for lines like

```
name="sd" class="scsi"
        target=0 lun=0;

name="sd" class="scsi"
        target=1 lun=0;
```

ii) find the section which corresponds to the SCSI ID (target) of the LSX.

iii) Add the following lines (target=2 in this example)

```
# added by bnh to support lsx on target 2
name="sd" class="scsi"
        target=2 lun=1;
name="sd" class="scsi"
        target=2 lun=2;
name="sd" class="scsi"
        target=2 lun=3;
name="sd" class="scsi"
        target=2 lun=4;
name="sd" class="scsi"
        target=2 lun=5;
name="sd" class="scsi"
        target=2 lun=6;
#end addition
```

iv) save the changes

2. You must reboot the system with the "reconfigure" flag to cause the OS to see all the new devices and create device nodes for them.

a) Shutdown your system: shutdown -i0 -g0 -y

b) at the "ok" prompt type: boot -r

---

**Note:** If you have placed an entry for a lun in the /kernel/drv/sd.conf file, but there is no corresponding device at that lun, expect a "polled command timeout", and "data transfer overrun" message when the system boots.

---

#### Other UNIX operating systems

For other UNIX operating systems; please refer to your operating system and SCSI host adapter user manual for instructions on how to enable the SCSI driver(s) to recognize and use LUNs.

## Errors and Trouble Shooting

### Most Common Problems

#### No devices are seen by the host computer

The LSX requires a device (either itself or one of the SCSI devices that it is controlling) to be at SCSI ID 0 on the SCSI OUT chain of the LSX. Normally the LSX is factory set at ID=0 on the LSX SCSI OUT chain.

#### Only the device at ID = 0 is seen by the host computer

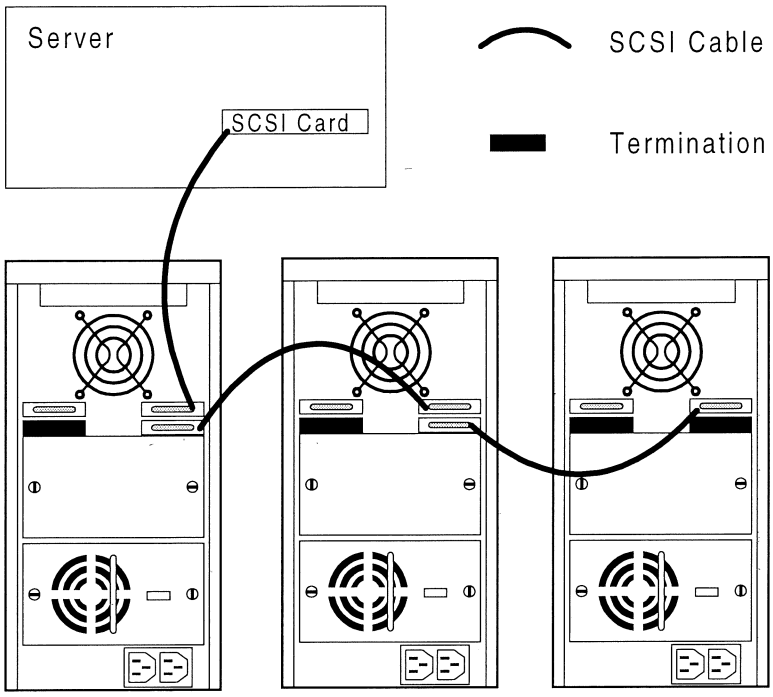
The Host operating system must be configured to support SCSI Logical Unit Numbers (LUNs).

#### Not all LSX Towers can be seen

Ensure that all LSX IDs are unique.

Check cabling (see diagram on the next page).

Ensure that towers are terminated correctly (see diagram on the next page)




When using more than one tower on the same SCSI chain and all the fore-mentioned have been verified, power on each tower individually and confirm proper independent functioning.

## Commonly Asked Questions

**Q**: How does the host SCSI chain get propagated through the LSX?

**A**: The LSX DOES NOT propagate the host SCSI chain. The SCSI OUT channel on the LSX is separate from the host SCSI chain. To propagate the host chain, use a Y SCSI cable for the SCSI IN connector. The Y cable allows the host SCSI chain to continue on the same cable.

**Q**: How does the LSX address the drive letter/volume limitations of DOS and Novell?

**A**: The LSX is a SCSI LUN expander. It enables devices to be attached to a host through a SCSI host adapter. It is entirely possible that the LSX will allow greater device connectivity than available drive letters. A software module is required to allow multiple devices to be combined on a single drive letter/volume. Luminex can recommend various software products that address the drive letter/volume limitations.

# Technical Support

If you have not been able to find the answer to your questions in this manual, or any other manual supplied with this tower, refer to the technical section of the SMS homepage at **http://www.sms.com**. If you are unable to resolve your problem(s) please call technical support at (703) 709-9898, ext. 5911. When contacting Technical Support have the tower serial number and model available.

**Note:** This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules when used within an SMS Tower. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced Radio/TV technician for help.

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# *Frederick County Public Library*

## *RFP & Response*

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**AN EMPLOYEE OWNED COMPANY**

# REQUEST FOR PROPOSAL

**for the**

# IMPLEMENTATION OF A HIGH SPEED WIDE AREA NETWORK AND BRANCH OFFICE LOCAL AREA NETWORKS

**for**

# FREDERICK COUNTY PUBLIC LIBRARY

**This RFP has been transmitted by:**

Ms. Beth Pelle
Associate Director
Frederick County Public Library
110 East Patrick Street
Frederick, Maryland 21701
301-631-3767

**October 20, 1997**

## 1.1 Background Information

Frederick County Public Library is a ..... The library system has its headquarters situated at the C. Burr Artz facility, and maintains five (5) branches and two remote administrative offices, all within Frederick County. The library's strategic plan calls for an increase in capability and functionality of its automated systems for patrons and staff as the population of the county continues to grow and make use of these services.

FCPL intends to procure the required equipment and installation support, and lease the associated high speed digital facilities and on-going network management, to implement a Wide Area network (WAN) to interconnect its headquarters building with the seven (7) remote locations. In addition, a local area network and related desktop workstations will need to be procured for the headquarters and remote locations. These locations are identified in Attachment 1.0. FCPL-provided equipment which will be inter-conected to the WAN and LAN systems is identified in attachment 2.0, with dependent connectivity to legacy systems housed both within and external to the FCPL headquarters.

This RFP is designed for vendors to bid WAN facilities, LAN facilities, desktop and server class equipment, and the installation and on-going support of these facilities. Section 4.0 addresses the required equipment and installation support.

The new network infrastructure is intended to support multiple activities. First, the LAN and WAN will provide a means by which remote locations can access CD-ROM data housed on a CD ROM server in the headquarters facility. The CD information is mostly text-based, but does include some graphical content. Second, the systems will support file and print activities from a new UNIX host (Sun) to be bid as part of the project. Desktop workstations are also request as additions to or replacements for existing systems within the branches and HQ. Third, the networks will support access to the Internet via a county provided Internet access connection emanating from the HQ facility. Finally, FCPL intends for this new infrastructure to support an automated library system upgrade to the system currently in place.

FCPL will support several protocols for the production network activity. The most prevalent LAN and WAN traffic will be TCP/IP, used for terminal emulation, client/server applications to a new Sun Server (Solaris 2.x), CD_ROM data access, file and print activities and access to the Internet. At Headquarters, legacy connectivity will be maintained to an HP3000 host system via TCP/IP. Bidders are cautioned to investigate the options required to support the desktop emulation of HP and Sun sessions.

To support FCPL's migration to the Sun Server from its existing HP 3000 in the first quarter of 1998, the WAN and branch LAN systems must be in place and operational by January 10, 1998.

The major factors that will be considered in the vendor selection process are: recurring and non-recurring costs; vendor expertise and support capabilities; and WAN and LAN capabilities relative to proposed equipment and network facilities.

## 1.2 PROPOSAL FORMAT

Bidders proposal must be structured in the following manner:

- Title Page- the responding company's name, address, telephone number and the name of the appropriate contact must be included along with the proposal date.
- Table of Contents- A listing of all major topics and associated page numbers must be provided.
- Technical Specifications - This section must describe in full functional and technical detail the proposed equipment and/or network services. The purpose of this section is to provide the proposal evaluation team with sufficient information to allow a complete and accurate assessment of the proposed equipment and services without reference to other material. Standard and optional capabilities must be clearly delineated. IN addition, the vendor's support capabilities associated with the proposed equipment and/or network services, including all options available to FCPL must be described.
- Installation and Acceptance requirements - This section should identify the tasks that FCPL must perform or be responsible for, and the tasks that the vendor will perform, to accomplish the successful on-time installation of the proposed equipment and services
- Summary Data - This section should summarize the proposed equipment and services the financial and technical information detailed in the previous sections. A complete list of process for each hardware item, and service proposed must be included along with any associated installation charges. In addition, bidders should summarize all exceptions taken to the requirements stated in the RFP.
- References - This section must provide a list of LAN and WAN references installed and supported by the bidder in the Washington metropolitan area of similar size and nature as that proposed to FCPL.
- Appendix - This section is to be used to include product brochures, technical manuals or any other material that the bidder feels may be used to elaborate on or to substantiate claims made in previous sections. This section will not be used for proposal evaluation; new information introduced here will not be considered.

## 1.3 PROPOSAL PROCESS

Vendor proposals are due no later than 4:00 PM, November 21, 1997. Proposals submitted must contain the most favorable terms for FCPL that bidder intends to offer. The proposal is to be submitted to the following individual:

Ms. Beth Pelle
Associate Director
Frederick County Public Library
110 East Patrick Street
Frederick, Maryland 21701

It is FCPL's intent to make this RFP, and the selected vendor's proposal submitted in response to this RFP, part of the final contractual documentation for the WAN and LAN procurement.

FCPL reserves the right to solely decide whether or not a proposal complies with the requirements defined in the RFP. FCPL also reserves the right to award a contract on any basis. Bidder's preparation of the response to this RFP is at Bidder's sole expense.

## 2.0 WAN TECHNICAL SPECIFICATIONS

The following sections detail FCPL's technical requirements for the solicited equipment and network services. Bidder should specifically identify any equipment or service needed to satisfy the following requirements that are not included in bidder's proposal.

The selected vendor must provide all labor, tools, transportation and supervision necessary to install and test the proposed equipment and/or services. FCPL reserves the right to participate in this testing. At a minimum, the results of this testing will be reviewed with FCPL.

The selected vendor is solely responsible for the implementation and performance of the proposed equipment and/or services. All provided materials and equipment must be new and must conform to current applicable industry standards. Nothing contained in this RFP shall be so construed as to conflict with any local, state or federal regulation governing the installation of communications equipment and/or facilities. All such regulations are considered part of this RFP and bidder is expected to meet the requirements of such regulations.

At the completion of the installation, the vendor will clear the locations of all debris that may have accumulated during the performance of the vendor's work. This debris removal will be done at vendor's expense. Vendor will also be responsible for replacing or restoring to original condition any damage caused by vendor's personnel. This repair work will be performed at no additional cost to FCPL.

## 2.1 WIDE AREA NETWORK TECHNOLOGY

The requirements listed in this section are mandatory or requested on an optional basis. Unit recurring and non-recurring charges must be identified in section 3.0 for each mandatory or optional capability, insofar as the capability is incrementally priced and not part of a bundled offering. For all requirements described in this section, either mandatory or optional, bidder must indicate compliance or non-compliance. Any deviation from the requirement description must be clearly explained.

FCPL requires that bidders propose their pricing for the WAN circuits according to the matrix which accompanies this RFP (Attachment 2.0). In requesting the multiple bandwidth rates and connection topologies, FCPL wished to leverage the most cost effective and extensible technologies available for their WAN. As well, the scalability of the topology will be a factor for growth of the system in the future. FCPL has requested quoted for dedicated, switched and shared-LAN topologies from the bidder in an effort to clearly identify the best solution for the WAN requirements. Bidder are encouraged to identify the technical and cost advantages associated with the proposed WAN solutions versus approaches not proposed.

The annual availability for any proposed WAN network services should be at least 99.99%, the Bit Error Rate (BER) should be no greater than 1 x 10-9, and any single network failure should last no more than two (2) hours in duration. Bidders are requested to identify availability, BER and repair times that they are willing to contractually guarantee. Any defect in the proposed services must be repaired or replaced at no additional cost to FCPL.

## 2.2 WAN EQUIPMENT REQUIREMENTS

The selected vendor will be responsible for the installation of all Routers, modems and CSU/DSUs. In addition, the vendor is responsible for the configuration and testing of all WAN equipment prior to cut-over.

### 2.2.1 ROUTER EQUIPMENT

- All routers must rack-mountable in an EIA standard 19" by 7' equipment rack. Branch/Remote office routers will be located on shelves or desktops. All routers should provide LED or similar visual indicators for internal component failures.
- All routers must provide full IEEE 802.3 Ethernet compatibility for LAN Ports and Ethernet interfaces.
- All Branch/Remote office routers must include at least eight (8) Ethernet 10Base-T interfaces for workstation connectivity to the router. Each interface must be front-accessible and capable of supporting systems attached up to 100 meters on Category Five UTP cable. This capability is not required at Headquarters.

- All routers must provide the ability to successfully route TCP/IP, RIP, OSPF, BGP and EGP.
- All routers will support SNMP standards
- The HQ router must possess the following configuration: two (2) Ethernet interfaces (100Base-TX), two (2) Ethernet interfaces (10Base-T UTP or AUI) and four (4) serial interfaces (up to T-1). If bidder proposes ISDN all headquarters an branch office equipment must support BRI or PRI interfaces.
- All routers proposed must support he ability to apply access control lists for port level, protocol level and system level security.

Bidders must specify and provide all required patch cables, interface cables, transceivers and connectors to support a total end-to-end connection from LAN to LAN. Bidders are especially advised to explicitly identify the costs per the attached worksheet (Attachment 3.0) for specifying software and hardware components for the routers. Bidders must also demonstrate certification and/or qualification on all proposed equipment, including hardware/software configuration, troubleshooting and repair. Vendor must be prepared to identify Router software revision level control procedures to ensure FCPL is maintained in a warranted environment.

### 2.2.2 DSU/CSU REQUIRMENTS

- All proposed DSU/CSUs should support the SNMP management standard.
- All proposed CSU/DSU should support leased line and frame relay connection interfaces, and as mandatory, must be configurable for at least one V.35 interface if necessary.
- CSU/DSUs will not be integrated into the routers unless an ISDN NTU-1 connection is bid by vendor. Otherwise, all CSU/DSUs will be external devices.

## 3.0 LOCAL AREA NETWORK TECHNOLOGY

### 3.1 INTELLIGENT HUB

The ability to provide 10base-T networking for the Branch/remote office networks will be incorporated into the router equipment provisioned for interconnecting the WAN to the LAN. The specifications in section 2.2.1 will satisfy the 10base-T requirements for the Branch/Remote offices. Bidder is advised to specify an Un-interruptible Power Supply for supporting the Router and CSU/DSU at each remote location.

The HQ facility will require one additional external managed twelve (12) port hub for installation on its legacy network as part of the segmentation plan. Bidder must provide the following system:

Hewlett-Packard J2630A 12-port Hub with SNMP unit installed

## 3.2 **WORKSTATIONS**

Bidders must provide a total of nine (9) workstation machines for the headquarters and Remote locations. FCPL standards limits the manufacturer selections to the following specifications:

Hewlett-Packard
IBM

The minimum configuration for the nine (9) workstations is as follows:

233 MHz processor (Pentium II)
32 MB RAM
2.1 GB Hard Drive
10/100 Ethernet NIC (On board or add-in. If add-in must be HP NIC)
15" SVGA Color Monitor
1 3.5" FDD
Built-In Speakers (system or monitor)
SoundBlaster or compatible sound card
101 Key Keyboard
Microsoft Mouse
Microsoft Windows 95 Operating System

Bidders must identify an optional cost for an external TouchPad mouse. Bidder is required to specify the cost to setup, install and test each of the workstation. Five (5) of the systems will be installed at the remote branches and four (4) systems will be installed at the HQ facilitiy. Testing will include the following parameters and must be incorporated into total system sign-off as part of project acceptance by FCPL:

- Successful boot-up to Windows 95 OS
- Active network connection on local area network via TCP/IP
- Ability to perform server login and authentication to HQ server via WAN or LAN
- Ability to print from specific applications to local printer via TCP/IP
- Ability to access the Internet and print text or graphic material
- Ability to access CD ROM server and print relevant text or graphical material
- Ability to access and establish a session to the legacy VTLS automated library system via Telnet session.

## 3.3 **PRINTERS**

Bidders must supply seven (7) printers for installation at Branch/Remote offices. Printer must be laser-class machine, capable of supporting the following functional specifications:

8 ppm
Built-in network capability for Ethernet 10Base-T
Expected pages per toner cartridge of 3-5000
12MB RAM minimum
200 sheet input tray
Support for TCP/IP printing (LPD/LPR)

Manufacturer may be Hewlett-Packard, Lexmark or IBM

## 3.4 **SERVER SYSTEM**

FCPL will be installing a Sun Ultra Series Enterprise 2 class server for use as its network server. Bidders are required to provide pricing for equipment, installation and support for the following hardware configurations:

Single 200MHz UltraSPARC processor
1 Mbyte Ultra Cache
256 MB RAM
9.1 GB Fast/Wide SCSI-2 Hard Drive
Server License
Internal SunCD 12 speed
Color Monitor
Keyboard and optical mouse
3.5" FDD

Pricing must include cost for the following upgrades:
Second 200MHz processor
Additional 128MB RAM

## 3.5 **TAPE BACKUP SYSTEM**

FCPL requires a tape backup hardware and software solution for the Sun Server and its data storage. The requested tape backup system must be an external unit, supported by a SCSI-2 connection or better to the Sun Server. The configuration thresholds for the tape backup hardware are as follows:

7GB storage capacity in native format
14GB storage capacity in compressed format
Minimum 1MB/sec transfer rate

8mm form factor
Ability to use eXtended Life tapes
SCSI-2 interface capable

Bidder is required to identify any and all tape backup software and products required to interface to the proposed Sun Server and Warranty and Guaranty information for reliability and backup

## 3.6 **EXTERNAL CD-ROM DRIVES**

Bidders are required to specify a CD ROM Server for the headquarters facility that will be accessible via the Wide Area network. The CD ROM Server must have the following minimum functional capabilities for implementation:

Support a minimum of seven (7) CD Rom platters
Housed in a single chassis or stackable chassis'
Support a SCSI or SCSI-2 interface
Support a network interface of 10Base-T, 100Base-TX or Ethernet AUI
Be supported under Solaris 2.x OS
Be accessible via TCP/IP within the Unix environment
Be accessible via Windows 95 workstations

Bidder is advise that the following CD ROM media will be utilized in an ongoing fashion by FCPL staff and patrons, and that responsibility for ensuring compatibility and access to each offering remains with the bidder:

SIRS, Inc. Researcher (www.sirs.com)
UMI ProQuest
IAC Business ASAP Select (www.iac.com)
IAC general Periodicals Index Select (www.iac.com)
Public Affairs Information Service, Inc. (www.pais.com)
Novelist (www.novelist.com)

CD ROMs will only be housed in the CD ROM server at HQ facility. It is not the intention of FCPL to distribute CD ROM media or content by any other means than remote access via WAN to the CD ROM server.

## 3.7 **HQ UPS SYSTEMS**

FCPL will require several Un-interruptible Power Supply Systems for the equipment to be installed at each location. The following classes of systems will must be bid:

2.0 KVA unit- HQ

600VA units- Branches and Remote Offices (1 per location)

UPS systems must be manageable by SNMP.

## 3.7 **HQ EQUIPMENT CABINET**

FCPL will require a single equipment cabinet for supporting the LAN equipment at the HQ facility. FCPL already maintains one cabinet for its WAN gear, and requires a new cabinet for the LAN components, including the server, monitor, tape backup systems, CD ROM server and 10Base-T hub. The cabinet should have the following configuration:

24" Wide with inside rails for 19" rack mountable equipment
35" deep
80" high
3 shelves (fixed)
2 side panels
1 back door (solid with lock)
Front Door (smoked acrylic) with lock
2 PlugMold Electrical Outlet strips (minimum 8 outlets each)
1 Top-Mounted Fan (550cfm minimum)
Casters

Bidder is advised to quote delivery and setup charges for equipment cabinet for setup on the first floor of the FCPL HQ facility. A loading dock area is in close proximity to the proposed installation area.

## 3.8 **SUPPORTING MATERIAL**

# 4.0 **INSTALLATION AND ACCEPTANCE**

The selected vendor is solely responsible for the engineering and installation of the proposed equipment and/or services. FCPL requires that at a minimum the first phase of the installation, providing the requested connectivity between the seven (7) sites and headquarters, be completed by January 5, 1998.

Bidder is required to identify all labor costs for installation and configuration of all components of their proposal. Bidder is required to identify labor pricing separate and distinct from hardware and software pricing.

As part of their response, bidder must supply an installation schedule identifying completion dates of the various phases for all major activities, beginning with the

contractual signing and ending with the completion and sign-off of installation. Tasks which FCPL is expected to perform must be clearly identified.

Bidder must identify a Project Manager, who will meet regularly with FCPL to review the progress of the WAN and LAN implementations. A resume for the individual must be included in bidder's response.

FCPL requires a thirty (30) day period after completion of installation for WAN and LAN acceptance testing. As part of the response to this section, bidders are required to submit their proposed acceptance criteria for testing the LAN and WAN portions of the installation. During the acceptance test period, all vendor support to resolve WAN and LAN problems will be provided at no additional cost to FCPL.

## 5.0 TRAINING REQUIRMENTS FOR FCPL

## 6.0 DOCUMENTATION

## 7.0 REFERENCES

Bidder must provide references for projects involving multiple site WAN and LAN installation in the Washington Metropolitan Area. References will be contacted by FCPL to confirm vendor's capabilities and performance. These references should have in operation the equipment and services proposed to FCPL if at all possible.

Reference information must include:

Customer Name
Customer Contact and Telephone Number
Customer Location
Specific Services Used
Date WAN/LAN Installed

**RFP NUMBER: 98-55**

RESPONSE TO PROPOSAL

FOR THE

# IMPLEMENTATION OF A HIGH SPEED WIDE AREA NETWORK AND BRANCH OFFICE LOCAL AREA NETWORKS

FOR

FREDERICK COUNTY PUBLIC LIBRARIES

OPENING DATE: MARCH 26, 1998 AT 2:00PM

Presented By:

The Signature Group, Inc.
8229 Boone Boulevard
Suite 820
Vienna, Virginia 22182

703-734-8720
www.thesiggroup.com

## MISSION STATEMENT

The Signature Group provides data processing technology resources that enable businesses to enhance their efficiency, productivity and profitability.

## 3.11.1 VENDOR PROFILE

The Signature Group was founded in 1995 and has provided high-level microcomputer LAN and WAN systems consulting services to businesses, associations, and government agencies in the Washington area. In late 1996, TSG began its planned growth into a full-service systems integration firm, still specializing in high-level LAN and WAN consulting, but augmenting that specialty with high-end product sales, support and certification.

Today, The Signature Group is a full-service systems integration firm, specializing in high-end products, consulting, and support services. The Signature Group places great emphasis on the importance of on going certification and education. Currently we hold high level certification from many of the industry's most prominent companies. These certifications include: Cisco Professional Services Partner, Microsoft Solutions Provider, Novell Authorized Gold Partner, Citrix Gold Solutions Provider, and UUNet authorized service provider. In addition, The Signature Group is a Compaq and Hewlett Packard authorized reseller and warranty repair center. All of our engineers and technicians continue training with these companies to ensure the highest level of competency in the services we provide.

The Signature Group understands the importance of the service we provide -- our service is our Signature! All TSG staff members are trained experienced and certified specialists in Microsoft NT, Solomon III & IV, Microsoft SQL, iMIS, Citrix WinFrame, Novell NetWare, Wyse, SCO, Microsoft SQL, and many other important mission critical applications, operating systems and product platforms. These credentials are only as valuable as the quality of service we deliver. Our commitment is to provide the highest quality of consulting and integration services with the highest degree of integrity. And we guarantee it!

# PHILOSOPHY

The Signature Group was founded on the premise that the right technology used in the right way, can significantly enhance an organization's performance and productivity. Technology alone cannot accomplish these goals. To realize the full potential, technology must be matched and integrated with an evolving set of business processes and procedures.

The Signature Group follows several guidelines when designing solutions for our clients:

- **Emphasize quality products and solutions.**
  The initial investment in quality is quickly recovered through enhanced performance, dependability and flexibility.

- **Translate the business needs into system requirements and use those requirements to drive the system design.**
  No two businesses are alike. Each system and support solution reflects the unique nature of each business. The Signature Group custom designs technology solutions to enhance the way businesses operate.

- **Design with the future in mind.**
  Business is dynamic, and management must be able to react to the market changes and opportunities. Solutions should be designed to accommodate both organizational growth and technological evolution.

# Technical Response

## Scope of Project

The Signature Group has evaluated the Request For Proposal 98-55 and has designed a network architecture that will meet or exceed all requirements of the FCPL project. TSG has proposed the LAN and WAN designs to accommodate either point to point circuits or a Frame Relay wide area network, with integrated LAN capabilities at each of the FCPL locations as well as the IIS location. TSG, through its sub-contractor AmTek Systems, will deploy a state of the art Hewlett-Packard HP9000 class host system to support the FCPL office and library automation applications. The design also accommodates access to legacy HP host systems (HP 3000).

The technical design will be discussed in two parts: LAN systems and WAN systems, with a final Summary section that reviews the overall component list and the required services to integrate the hardware and software. TSG has also listed a number of Assumptions and Dependencies for successful completion of the proposed design and we have clearly identified the responsible parties for closure of these items.

## LAN Design:

### 3.3.1: Network Components

TSG will integrate a Hewlett-Packard AdvanceStack J3201A with internal network management module (Ethernet 10BaseT) at each branch location and the headquarters location for support of the workstation and router access to the wide area network resources. The 10BaseT network will be composed of the Hewlett-Packard 10Base-T intelligent hub, supporting SNMP network management capabilities. The hub will be installed in a pre-defined space agreed to by both TSG and FCPL. The hub will be either wall or shelf mounted, secured from public access, and situated so as to be in close proximity to the building wiring systems for the respective branch locations. TSG will install a single APC SU1200NET UPS system in the same location as the hub to sustain three components: the hub, the router, and the CSU/DSU. The combined power budget for all three items does not exceed 800VA. The power cord for the hub will be connected directly to the TSG provided UPS systems. The UPS systems will be installed in a dedicated 20AMP outlet (NEMA duplex).

TSG is an authorized Hewlett-Packard dealer and maintains a trained staff of HP authorized staff to install, configure and support this equipment.

DEPENDENCIES:

- FCPL must provide all Category 5 station cabling for interconnection to the HP hub. All cabling must be terminated in 568A or 568B configuration
- FCPL must provide a valid TCP/IP address for the hub management module
- FCPL must provide a dedicated (non-shared) 20 AMP electrical circuit to the designated hub location. This circuit must be terminated in an approved duplex outlet per building code.
- FCPL must provide access to each branch facility for TSG and its sub-contractors for installation and testing of all branch equipment proposed in this document.

All Category 5 cabling will be terminated by FCPL in approved 10BaseT standard configuration (568A or 568B). TSG will provide the respective number of patch cables per branch to interface the horizontal wiring to the HP hub. TSG will provide enough patch cables for the workstation(s), router and printer at each location.

At the Headquarters location, TSG will integrate the required LAN interface modules to the router and provide suitable network access for the five workstations via a new HP AdvanceStack J3201A intelligent hub. The additional HP hub equipment will be installed at the Headquarters location on a defined Layer 3 network Segment as provisioned buy one or more new ports from the Cisco router.

TSG will perform no LAN integration at the IIS facility. TSG will perform router to router connectivity for the existing fiber link between IIS and C. Burr Artz via the proposed WAN gear.

### 3.3.2: Workstations

IBM PC300GL 6/233 workstation(s) will be installed in pre-determined locations at each branch and headquarters facility. The workstations will be configured with Microsoft Windows 95 operating system. Each system will sustain a single partition for the OS (no dual-boot operating systems), and the correct memory page file sizes and driver configurations will be set. TSG will pre-stage all workstations at its own facility and test and document the configuration prior to deployment in the field. The workstation configuration will consist of the following protocol and application specific information:

Microsoft Windows 95 OS
Walker Richer Quinn Reflections Suite for HP
Walker Richer Quinn Reflections TCP/IP protocol stack
Microsoft Internet Explorer 4.0 Browser software

TSG is proposing the use of the WRQ Reflections for HP Suite for client access to the host system to access the CD ROM server, perform file and print activities, provision telnet sessions and support future application access (terminal) from the system. TSG will utilize the built-in capabilities of Windows 95 to access sound and video playback capabilities should they be required by patrons or staff. Each workstation will be outfitted with the required minimum configuration as stated in the RFP:

IBM PC300GL 6/233MMX
233MHz processor (Pentium II)
32MB RAM
2.5GB Hard dive
3C515-TX 10/100 Ethernet NIC
15" SVGA Monitor with Built-In speakers
3.5" FDD
Sound Blaster compatible card
101 keyboard

FCPL will have the option of utilizing an MS mouse or a GlidePoint TouchPad Mouse BTN for each PC.

TSG will upgrade the existing Brunswick 486 system via the following upgrade path:

- Backup all existing configurations and data to external TSG provided system
- Install 16MB memory upgrade
- Install MS Mouse or GlidePoint TouchPad mouse
- Reformat existing hard drive
- Install add-on 3C515-TX NIC and configure for network access
- Install WRQ Reflections for HP Suite
- Test and document per approved test plan

TSG is an authorized Microsoft Solutions Provider with three (3) MCSE staff members trained and authorized to perform installation and configuration of Windows 95 workstations. TSG has significant experience with the IBM workstation product line and is prepared to stage and deploy the workstations for seamless connectivity to the proposed network infrastructure at time of installation.

DEPENDENCIES:

- FCPL must provide a valid TCP/IP address for each workstation connected to the branch or headquarter's facility. FCPL is advised that since the local LAN will be a unique network segment for the WAN or other LANs, that a valid subnet and host address will be required for successful network access to the systems in question.
- FCPL must determine its selection of MS Mouse or TouchPad mouse within 10 business days after award of contract for sufficient time to configure and test each workstation

### 3.3.8: Equipment Cabinet

TSG will provide, configure and install a single equipment cabinet at the headquarter's facility for the purposes of supporting the HP AdvanceStack 10BaseT hub, the server tape backup systems and additional components for use of the new HP9000 K series host. The cabinet will be an Compaq 42U system, with three (3) fixed shelves, a front smoked acrylic door with lock, a rear solid door with lock, two (2) side panels, 2 PlugMold electrical strips for power, an exhaust fan (minimum 550 CFM) and industrial casters.

TSG is an authorized Compaq Equipment vendor and has had significant experience with the 42U product line.

DEPENDENCIES:

- FCPL must provide a dedicated 20 AMP outlet for support of the UPS system allocated for the LAN gear at the headquarter's facility. This circuit must be terminated in a NEMA duplex outlet and be positioned within 3 feet of the proposed equipment Cabinet location
- FCPL must provide a suitable space to house the equipment cabinet, including a maintenance area of three (3) feet in front of and behind the unit for servicing internal components.
- FCPL must grant sufficient access to TSG and its subcontractors to access the cabinet location to support the components.

### 3.3.4: Server System

TSG and its sub-contractor AmTeK Systems will install a new HP 9000 K380 server system for FCPL to support the required applications and connectivity requirements of the library. The host systems will be installed at the C. Burr Artz facility, and connected to the dedicated segment provisioned by the new Cisco router at the same location. The HP9000 will be configured as follows:

K380
240MHz Processor
4 MB Cache
256MB RAM
2 x 9.1GB Hard Drives
Internal CD ROM
Monitor
Keyboard and Mouse

HP-UX 11.0 32 User license
HP Internal DAT drive 8/16GB with data compression capabilities

A second 240MHz processor and additional 128MB RAM will be quoted as well.

TSG and AmTek Systems will install, configure, test and document all aspects of the HP9000 installation. TSG is proposing the use of HP-UX version 11.0 for the server OS, and.

The HP host will be configured to support thirty-two (32) active sessions (network) and be accessible from the local LAN or WAN. TSG will certify Year 2000 and Z39.50 compliance for the HP 9000 K380 server system.

AmTeK Systems is an authorized Hewlett-Packard Unix Systems integration and service organization and has had extensive design, installation and support experience with all models of the HP mid-range server line. Amtek brings a working knowledge of HP3000 and 9000 integration experience to the table, and is prepared to resolve all of the server and legacy application issues with this project in a timely and efficient manner. AmTek and TSG will support the new HP 9000 system via an economical and cost-efficient maintenance plan and is willing to work with FCPL to provide the best support plan options for outstanding service and response.

DEPENDENCIES:

- Power: FCPL must provide a dedicated 20 AMP outlet to support the APC UPS which will support the HP90000 system. This outlet must be within 3 feet of the proposed equipment cabinet location
- Loading Dock: FCPL must provide sufficient loading dock access time for delivery of the system and provision access to the freight or building elevator for delivery of the server
- Cooling: FCPL must provide sufficient cooling air supply to the room which will house the system. The HP 9000 380K will require 1200 BTUs of air for cooling purposes

### 3.3.3: Printers

TSG will provide Hewlett-Packard 4000N LaserJet printers for each branch location and the headquarters facility. The 4000N will be configured as follows:

8 pages per minute
Built-In Ethernet 10BaseT interface
12MB RAM (8MB base plus 4MB upgrade)

200 sheet input tray
Capability of TCP/IP support
Expected toner life of 3000-5000 pages

TSG will install the printers at each location and connect them to the TSG provided HP hub via the FCPL provided horizontal wiring and/or a Category 5 patch cable. The printers will be configured for the TCP/IP protocol, and be tested for workstation and server printing. TSG will install four (4) printers at the headquarters location and one (1) each at each branch location. No printers will be installed at the IIS location.

### 3.3.6: CD ROM Server

TSG is proposing the use of a MicroTest 14 bay CD ROM 12X with DiscPort, to be installed at the headquarters location on the dedicated LAN segment. The MicroTest CD ROM server is network ready, and can be accessed directly via TCP/IP by user workstations as opposed to being queued by request from the HP 9000 server. If necessary, the MicroTest CD ROM server will work within the HP-UC OS as a network ready device or a defined output queue from the host system. The CD ROM server is Year 2000 compliant and Z39.50 compliant. TSG will install the CD ROM server in the proposed equipment cabinet and interconnect it to the proposed HP AdvanceStack hub via a Category 5 patch cable.

### 3.3.7: Un-interruptible Power Supplies

TSG will provide UPS systems for each branch location and the headquarters facility per the specification in the RFP. TSG will utilize the APC UPS system in the following configurations:

**Branch System**: APC SU1200NET To support router, workstation, CSU/DSU. No printers will be connected to the branch UPS system.

**Headquarters**: Quantity 2 of APC SU2200NET First one to support the HP 9000K 570 and its components. The second, to support the CD ROM server, HP AdvanceStack hub, WAN router, CSU/DSU.

DEPENDENCIES:

- FCPL must provide sufficient space in or near the Compaq equipment Cabinet to support the UPS systems
- FCPL must provide sufficient access to the electrical ciruits specified in section xx for inter-connection of the UPS systems

TSG will design, install, configure and oversee the provisioning of the wide area network circuits and hardware for inter-connection to the FCPL LAN systems. TSG has proposed the use of the Cisco product line for support of the LAN to WAN inter-connectivity devices. The Cisco router hardware will support either point-to-point or frame relay topologies via synchronous serial interfaces and the proposed ADC Kentrox CSU/DSU. TSG has extensive experience in the installation and project management of wide area network installations and maintains an excellent working relationship with Bell Atlantic and other service providers in the Frederick County area.

### 3.2. Router Hardware

TSG will configure and install a single Cisco 1005 Router at each branch location. This unit will support a single Ethernet connection to the HP AdvanceStack hub and a single synchronous serial connection to the proposed ADC Kentrox CSU/DSU. The Cisco 1005 is capable if supporting TCP/IP and IPX network protocols and can sustain frame relay, ppp, and other encapsulation methods for wide are routing protocol transport. TSG will configure the Cisco 1005 to segment the LAN and WAN traffic via defined IP network segments and will require suitable IP subnet information form FCPL to perform this. All configuration and control information will be reviewed with FCPL prior to deployment.

TSG will install the branch router in close proximity to the circuit installed at each location. The Router and CSU/DSU will be plugged into the UPS system provisioned for each branch location. TSG will provide a V.35 cable to interface from the Cisco 1005 to the CSU/DSU as part of this configuration. TSG is recommending the use of Cisco IOS 11.2 for the support of the wide area and local area networks.

TSG has read the proposed requirements for the Headquarters router and will and proposes the Cisco 7206 router to support inter-connectivity from this location. The RFP has stated that an existing 7206 is installed at the IIS location. TSG will provision a second 7206 for the HQ facility and build it for the following configuration:

7206 Chassis
Network Processor Engine 150MHz module with 32 MB RAM
PA-4E Four port Ethernet module
PA-FE-TX (2) single port fast Ethernet modules
PA-4T Four port Serial module
IOS 11.2
Smartnet Maintenance for all components

The router will be configured to support the T-1 circuit from the IIS facility to a defined serial port and to access the proposed HP AdvanceStack hub via a 10BaseT module. No other interfaces will be configured until necessary for this device at Headquarters.

### 3.3.2: CSU/DSU

TSG is proposing the use of the ADC/Kentox T-1 CSU/DSU product to support the inter-connection of the wide area network circuit to the proposed router at each branch location. TSG will configure and install the CSU/DSU at each branch location and at Headquarters for the required connectivity.

TSG will provision an AdTran TSU LT for the IIS portion of the T-1 link inter-connecting the headquarters facility with the IIS facility.

## 3.2.4: Wide Area Network Circuits

TSG recommends the use of a Frame Relay network topology for the FCPL wide area network. This recommendation is based on several factors:

- Frame Relay will provide a cost effective and mature technology offering for FCPL in support of the bursty LAN-based applications required by FCPL
- A Frame Relay topology will require one half the amount of premises equipment (CSU/DSU, router serial ports) as a point-to-point solution
- Frame Relay will provide a strategic packet switched topology from which migration may be made to future packet or cell switched technologies within the bell Atlantic premises systems.
- Frame Relay can be monitored and measured at the packet level by the service provider for accurate and dynamic network management of the wide area network system

TSG recommends the use of the bell Atlantic frame relay network topology and has reached agreement with bell Atlantic to guarantee the following service level thresholds for the FCPL network:

- Availability of 99.99%
- Bit Error rate not to exceed 1 x 10-9
- No single circuit failure of more than 2 hours without a redundant fail over within the Bell Atlantic network
- Remote network monitoring of circuits and failure response time of less than two hours for notification and start of repair

**Frame Relay Connectivity**

TSG will oversee and manage the installation of five frame relay circuits to be installed by Bell Atlantic to each of the branch locations plus one additional circuit to be installed to the IIS facility. The IIS entry point to the frame relay cloud will be via an IIS provided

serial interface on its own existing router. TSG will provide the CSU/DSU for the connection of the serial links to teach of the branch routers and the IIS router.

TSG will implement sub-interface configurations for the Cisco serial interfaces for support of the frame relay configuration. TSG will be responsible for DLCI, addressing and encapsulation configurations as part of the WAN installation. FCPL will be required to provision the following number of IP subnets for the successful completion of the WAN:

| | |
|---|---|
| WAN Cloud | 1 Class C subnet (14 host) |
| Branch LANs | 5 Class C subnets (6 host) |
| HQ LAN | 1 Class C subnet (64 host) |
| IIS-HQ T-1 | 1 Class C subnet (2 host) |

Alternatively, TSG can work with FCPL provided Class A or B TCP/IP addresses as necessary.

The frame relay network will be provisioned so as to allow the maximum throughput towards the IIS facility (1.544MB) from each branch location. As such, the committed information rates from IIS into the WAN are twice that of the branch CIR (768K). This is done to alleviate bottle-necking and latency on connections.

The frame-relay pricing is provided in Section 6 of the Pricing Proposal.

**Point to Point Connectivity**

Should FCPL opt to install a point to point network topology, TSG is prepared ot support the following installation:

TSG will oversee and manage the installation of six (6) Bell Atlantic T-1 circuits to be installed from the IIS facility to each of the branches and to the headquarters location.

NOTE: The point to point topology will require six serial interfaces at the IIS location on their existing 7206 router. As this component was not specified in the RFP, TSG is explicitly stating that it is the requirement of the IIS organization to supply sufficient serial interfaces to interconnect their existing router to the six serial lines destined for their location. Alternatively, FCPL can install the 4 port serial module specified for the HQ router and place it in the IIS router to support four of the links. This would still leave a requirement for two additional serial ports not explicitly identified in the RFP which IIS must provision.

TSG has noted the cost for the point-to-point additonal hardware at IIS as an exce
the pricing section 6.0.

The pricing for the point to point T-1 circuits is included in Section 6.

### 3.5: Installation and Acceptance

TSG will adhere to the attached installation schedule as closely as possible. TSG will not be responsible for delays due to FCPL construction, infrastructure build-out, asbestos abatement or any other physical plant work conducted by FCPL as it may affect the component installation at the proposed site/location.

TSG will be represented by Craig Phillips as the Project Manager for this installation. Mr. Phillips has had extensive experience with LAN and WAN installations and is certified and authorized for all the component hardware and software specified in this proposal. Mr. Phillips resume is attached for review by FCPL.

### Testing Acceptance Criteria for FCPL Wide Area Network

### LAN Testing Criteria

TSG will perform the following tests against the components provided as part of the acceptance for the systems:

Hubs:

- Ping network management module via network connected workstation
- Utilize two workstations and test IP connectivity via PING test
- Run internal diagnostics and test via HP AdvanceStack Manager
- Power down and power up and repeat tests for each location

Workstations

- Run Windows 95 diagnostics for memory, video, controllers, hard disk, keyboard, mouse and system board
- Perform scan disk of hard drive and remediate error conditions
- Perform NIC tests via manufacturers provided test software and confirm access to systems and network
- Ping network attached workstation via control workstation
- With WAN available, boot system successfully to Windows 95
- Ping across wide area network to target host system
- Login to HP9000 server via terminal session or telnet session
- Print to specified local network printer via HP 9000 application
- Access internet via IIS provided internet access point and via approved firewall authentication. Print from Internet.

- Access CD ROM server and print relevant text or graphical material
- Establish session to legacy HP3000 system via NS/VT. Access VTLS system on HP3000 and perform series of catalog lookups and searched for reference materials

HP9000 K380 Server

- Boot server under HP-UX 11.0
- Run internal server system diagnostics (HP specific)
- Apply any test applications from FCPL for test purposes only and attempt to access via terminal and telnet sessions
- Test connectivity via Ping tests form WAN and LAN segments
- Review print queue information for LPD or LPR and test access to system and network printers
- Down server and re-boot successfully
- Perform drive-failover test for redundancy of internal disk storage
- Perform UPS failover test for run-time support on batteries

MicroTest 14 Disc CD-ROM Server

- Boot server on network
- Test connectivity from control test workstation
- Install FCPL provided CD-ROMs
- Access form local LAN segment and view/print information
- Access for remote WAN/LAN segment and view/print information

**WAN Criteria**

- Test loopback to each circuit
- Perform internal loopback on each CSU/DSU and confirm communications with Central Office
- Perform end-to-end testing via TCP/IP for branch to headquarters connectivity
- Log into routers and check configurations
- Perform ping tests to all active router interfaces
- Perform ***show ip route*** command at each router and record results
- Perform ***sho ip arp*** at each location and record results
- Perform ***sho interfaces*** on each router and record results
- Perform ***sho hardware*** on each router and record results
- Perform end-to-end access to HP 9000 via each WAN link and document TTL and round-trip time including latency in milliseconds

### 3.6: Training

TSG will provide training for FCPL staff members. The class material will cover the following:

| | |
|---|---|
| System Administration Training for HP9000 | 1 Day |
| Systems Administration for HP-UX | 3 Days |
| Windows 95 OS Training | 1 Day |
| LAN/WAN overview | 4 Hours |
| Protocols and Inter-connectivity | 4 Hours |

FCPL will be required to provide a meeting room, sufficient seating and a list of staff members to attend each class. TSG will allow up to 6 staff members for each class. Classes will be provided on separate days. Training materials will be provided by manufacturer and TSG/AmTek systems for these classes.

### 3.7: Documentation

TSG will provide all manufacturers and vendor warranty and system documentation to FCPL as required per the RFP. TSG will prepare a matrix for asset/inventory purposes of all components and their respective warranty information and duration. TSG will prepare an Emergency Documentation kit for immediate reference by FCPL staff members, and maintain two copies of hard bound and electronic versions: one at FCPL headquarters, the other at TSG's home office.

**IIS Facility**

AdTran TSU LT 1

10MB fiber to HQ
T-1 Frame Relay access circuits to Bell Atlantic

Installation for all components and services
Testing and Acceptance sign-off checklists for all sites
Training Classes to be held at FCPL
Documentation for all services and components
Warranty and Asset/Inventory information matrix

## 6.0 PROPOSAL FORM

The Firm of: The Signature Group, Inc.

Address: 8229 Boone Boulevard
Suite 820
Vienna, VA 22182

Hereby agrees to provide the requested services as defined in the request for Proposal No. 98-55 and attachments thereto at the contract prices of:

COSTS:

1. Hardware

WIDE AREA NETWORK HARDWARE COST

| | |
|---|---|
| Hub (5) | $2,485.00 |
| Routers (5) | $5,985.00 |
| CSU/DSU (5) | $4,425.00 |
| Workstations (4) | $6,740.00 |
| Printers (4) | $7,436.00 |
| UPS (5) | $3,865.00 |
| Adtran DSU TSULT | $ 805.00 |
| Hardware & Software for existing PC (Please list each item) | |
| 16MB Memory Upgrade | $ 300.00 |
| 3C515-TX NIC | $ 100.00 |
| WRQ Reflections for HP Suite | $ 193.00 |
| Touch Pad (5) | $ 335.00 |
| Labor | $6,250.00 |
| **TOTAL COST** | **$38,919.00** |

LOCAL AREA NETWORK HARDWARE COST

| | |
|---|---|
| Hub | $ 497.00 |
| Routers | $33,741.00 |
| Workstations (5) | $ 8,425.00 |
| Printers (5) | $ 9,295.00 |
| Touch Pad (4) | $ 268.00 |
| Labor | $ 6,000.00 |
| **TOTAL COST** | **$58,226.00** |

SERVER SYSTEM COST

| | |
|---|---|
| Server with 20 MHz processor, 4MB cache, 256 MB RAM and 18 GB Storage | $86,447.00 |
| DAT Drive | $ 3,638.00 |
| CD Drives (14) | $ No Charge |
| CD ROM Server | $ 6,910.00 |
| UPS | $ 1,760.00 |
| Cabinet | $ 2,593.00 |
| License | $ 4,940.00 |
| 128 MB RAM Memory Upgrade | $ 2,420.00 |
| Second 220 MHz Processor | $25,200.00 |
| **TOTAL COST** | **$133,908.00** |

| | |
|---|---|
| TRAINING COST | $ 6,000.00 |
| INSTALLATION | $ 3,000.00 |

OTHER: (Please lists each item and cost separately)

| | |
|---|---|
| 20 Category 5 Patch Cables 6 Foot | $ 120.00 |
| 15 Category 5 Patch Cables 15 Foot | $ 110.00 |

2. Additional Software not included above
(Please list each software package separately)

| | |
|---|---|
| Walker Richer Quinn Reflections for HP Suite 15 User License | $ 3,507.00 |

3. Frame Relay Costs for Remote Branches
(Note: FCPL will choose 1 of the following:)

**POINT-TO-POINT T-1 1.544MB BPS**
Monthly recurring charges

Seven (7) Year Pricing Commitment

Monthly Charges

| | |
|---|---|
| IIS | $ 310.00 |
| Brunswick | $ 495.00 |
| Emmitsburg | $ 565.00 |
| Middletown | $ 415.00 |
| Thurmont | $ 505.00 |
| Walkersville | $ 415.00 |

Installation Charges Per Location/Non-Recurring

$_____2.00_____ x _____6_____location = $ 12.00
(Total)

Start – Up Charges (Non-Recurring)

$____0_____ x _____0_____location = $____0_____
(Total)

## FRAME RELAY 384k CIR BURST TO 768k

Monthly recurring charges

Five (5) Year Commitment Pricing

Monthly Charges

| | |
|---|---|
| IIS | $ 394.66 |
| Brunswick | $ 394.66 |
| Emmitsburg | $ 394.66 |
| Middletown | $ 394.66 |
| Thurmont | $ 394.66 |
| Walkersville | $ 394.66 |

Installation Charges Per Location/Non-Recurring

$_____1,012.00___ x _____6_____location = $ $6,072
(Total)

Start – Up Charges (Non-Recurring)

$_____0_____ x _____0_____location = $____0.00_____
(Total)

## FRAME RELAY 768k CIR BURST TO T-1

Monthly recurring charges

Five (5) Year Commitment Pricing

Monthly Charges

| | |
|---|---|
| IIS | $ 408.00 |
| Brunswick | $ 408.00 |
| Emmitsburg | $ 408.00 |
| Middletown | $ 408.00 |
| Thurmont | $ 408.00 |
| Walkersville | $ 408.00 |

Installation Charges Per Location/Non-Recurring

$____1,012.00_____ x _____6_____location = $ 6,072.00
(Total)

Start – Up Charges (Non-Recurring)

$_____0_____ x _____0_____location = $ 0.00
(Total)

4. T-1 LINE TO CHURCH STREET

T-1 1.536 MBPS with 768KBPS

**Five (5) Year Commitment Pricing**

| | |
|---|---|
| Monthly Charges | $ 310.00 |
| Installation Charges/Non Recurring | $ 2.00 |
| Start-Up Charge (Non-Recurring) | $ 0.00 |

5. MAINTENANCE:

| Maintenance Cost | Regular Business Hours<br>9 – 5 Monday-Friday | Library Hours<br>10-9 Monday-Thursday<br>10-5 Friday-Saturday |
|---|---|---|
| One Year Pre-Paid | $15,502.00 | $15,502.00 |
| Break-Fix Basis: | | |
| Labor Rate: | $110.00/hour | $110.00/hour |
| Discount on mfg. Suggested retail price | 12.5% | |

EXCEPTIONS:

TSG has noted in its technical response that the proposed T-1 point-to-point topology requires significantly more customer premises equipment than is called out in either the FCPPL technical RFP or the Pricing Section line items. As such, if FCPL is to choose the point-to-point topology, TSG will require FCPL to purchase the following additional items:

| | | |
|---|---|---|
| Additional ADC Kentrox CSU/DSU | 5 | $ 4,320.00 |
| Additional PA-4T modules for IIS 7206 | 02 | $ 7,180.00 |
| Additional v.35 cables | 5 | $ 385.00 |
| Additional Labor | 10 | $ 1,100.00 |
| Additional Maintenance 1 Yr. | 1 | $ 1,057.00 |

CONTRACTOR MUST SIGN HERE AND ALSO FINAL BID PAGE

COMPANY: The Signature Group

ADDRESS: 8229 Boone Blvd. Suite 820
Vienna, VA 22182

AUTHORIZED SIGNATURE _____

TITLE Michael C. Perdue, Executive Vice President

PHONE NO. 703-734-8720

DATE March 26, 1998

# CERTIFICATION

The Department of Purchasing requests as a matter of policy that any firm receiving a contract or award from Frederick County, Maryland, shall make certification as below. Receipt of such certification, under oath, shall be a prerequisite to the award of contract and payment thereof.

I (we) hereby certify that if the contract is awarded to our firm, partnership or corporation that no member of the elected governing body of Fredrick County, or members of his or her immediate family, including spouse, parents or children, or any person representing or purporting to represent any member or members of the elected governing body, has received or has been promised, directly or indirectly, any financial benefit, by way of fee, commission, finder's fee, political contribution, or any similar form of remuneration on account of the acts of awarding and/or executing this contract.

HANDWRITTEN SIGNATURE OF AUTHORIZED PRINCIPAL (S):

NAME: _____

TITLE: Executive Vice President

NAME OF FIRM, PARTNERSHIP/CORPORATON:

COMPANY: The Signature Group

DATE: March 26, 1998